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ABSTRACT

This study determined the degree to which beginning public school secondary teachers change along the authoritarian dimension and the relationship of certain possible causes of teacher authoritarian attitude changes to observed changes. A theory based on the concept of socialization was offered to explain the teacher attitude change. A research sample was composed of 86 beginning secondary school teachers in Seattle public schools in 1970-71, 34 principals, and 213 experienced teachers. The Minnesota Teacher Attitude Inventory measured permissive-authoritarian attitudes while further data concerning conditions related to the beginning teachers' experience was obtained by using questionnaires. Results of the data analysis supported some parts of the theory but required others to be rejected. Major observations were that a) the average change toward authoritarianism was probably too small to be of consequence, b) beginning teachers perceived their principals and the faculty of their school as being much more authoritarian than was the case, c) the beginning teachers' perceptions of their principals authoritarian attitudes was correlated with their changes of attitude, and d) the more authoritarian the attitude held by the beginning teacher at the start of the year, the less was the increase in authoritarianism that occurred during the year. A 58-item bibliography and appendixes with questionnaries are included. (Author/MJM)

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Final Report

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The Relationship Between School Organization And Teachers' Authoritarian Attitudes

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REPORT SUMMARY

Several investigators have reported an increase in authoritarianism in beginning teachers during the teachers' initial teaching experiences. The purpose of this study was to determine the size of the attitude change and to explore conditions in the organization of the schools that might be related to any such change, so that administrators might be aided in selecting teachers who will contribute to desirable psychological climates in their schools in May as well as in September. A theory based on the concept of socialization was offered to explain the teacher attitude change.

The research sample was composed of 86 beginning secondary school teachers in metropolitan Seattle public schools in 1970-71, 34 principals, and 213 experienced teachers. The Minnesota Teacher Attitude Inventory (MTAI) was used as the measure of permissive-authoritarian attitudes. Data about conditions related to the beginning teachers' prior experiences and to their first year of teaching were obtained by using questionnaires.

Thirty-five hypotheses based on the socialization theory were examined by testing correlation coefficients and values of Student's t for significance. Also, a set of the MTAI responses was subjected to a factor analysis. Three factors were considered to measure aspects of the permissive-authoritarian dimension. Scores on each of the three factors were used as the dependent variable in place of the total MTAI scores, and each of the hypotheses was reexamined.

Results of the data analysis supported some parts of the theory but required that other parts be rejected. Some of the major results were that: (a) the average change toward authoritarianism (as measured by the MTAI) was small, probably too small to be of practical consequence; (b) the beginning teachers perceived their principals as being much more authoritarian than was actually the case; (c) the beginning teachers perceived the faculties of their schools to be much more authoritarian than was actually the case; (d) the beginning teachers' perceptions of their principals' authoritarian attitudes was significantly correlated with their own changes of attitudes; and (e) the more authoritarian the attitudes held by the beginning teachers at the beginning of the year, the less was the increase in authoritarianism that occurred during the year.

CHAPTER I

THE PROBLEM

Statement of the Problem

Brief Background of the Perceived Problem

The primary resource of an educational system is its personnel, especially its teachers. The teachers engage in the daily personal interaction with the students that is the core of most educational programs. Since it is the teachers who are in immediate contact with most of the students during most of the school day, it is the teachers who have the power to make the multitude of minor decisions that largely determine the tone of a school. An atmosphere of friendliness and camaraderie may prevail or an atmosphere of impersonal bureaucracy, depending upon the actions and attitudes of the teachers in the school.

Administrators who desire to lead their schools toward the achievement of certain goals, among which goals is the creation of a desirable psychological climate (however the administrator defines that climate), should select their teachers carefully, choosing only those who will promote attainment of the administrators' educational goals.

However, there is a problem. An administrator who selects a beginning teacher because of the teacher's desirable attitudes in August cannot be sure that the teacher will have the same attitudes the following June--after a year of teaching experience. Whatever the attitudes an administrator deems desirable, he can only guess at the degree to which a beginning teacher will have those same attitudes at the end of his first year of teaching. Thus, an administrator can only surmise

the ultimate effect a new teacher will have upon the psychological climate of the school.

According to numerous studies, public school teachers become more authoritarian during their initial teaching experience. Information concerning the extent of this attitudinal change and the factors that are associated with the change may help administrators to better predict the effects of their decisions in choosing new teachers, at least with respect to the permissive-authoritarian attitudes they may expect from those teachers.

Purposes of the Present Research

The purposes of the present research are: (a) to determine the degree to which beginning public secondary school teachers do change along the authoritarian dimension, and (b) to study the relationships of certain possible causes of teacher authoritarian attitude changes to observed changes.

Definition of Terms Used

For the purpose of this study, some of the terms used frequently in the rest of the report are here given operational definitions.

Authoritarian. According to Webster's New Collegiate Dictionary (1951) "authoritarian" means "advocating the principle of obedience to authority as opposed to individual liberty." It is here assumed, as is conventional in the psychometric literature, that the Minnesota Teacher Attitude Inventory (MTAI) is a measure of the authoritarian dimension of teachers' attitudes toward school-related concepts. The negative end of the MTAI scale is taken as representing relatively more

authoritarian attitudes. (Certain subscores of the MTAI are believed to be better measures of authoritarianism than is the whole inventory, since a total MTAI score represents the sum of several attitudinal dimensions by a single number.)

Beginning teacher. As used here, "beginning teacher" means a school teacher in his/her first year of public school teaching or, more narrowly, when the term refers to the present research sample, "beginning teacher" means a teacher in his/her first year of public secondary school teaching who was teaching in or near Seattle, Washington in 1970-71 and who consented to participate in the study.

Experienced teacher. As used here, "experienced teacher" means a person who has had one or more years of experience as a school teacher, public or private, or, more narrowly, when the term refers to the present research, "experienced teacher" means a secondary school teacher with one or more years of experience in private or public school teaching at any level who consented to participate in the study after being selected at random from the faculty of a participating school.

Teacher. "Teacher" refers here to those who teach in a classroom situation during the entire school day, except that a single period might be used for duty as a department chairman. Principals, assistant principals, and counselors and librarians--even part-time-- are not here considered "teachers."

Related Research

The Minnesota Teacher Attitude Inventory

Several investigators have reported teacher attitude changes on the permissive-authoritarian dimension. Some of these have used the Minnesota Teacher Attitude Inventory (MTAI). This instrument was "designed to measure those attitudes of a teacher which predict how well he will get along with pupils in interpersonal relationships [Cook, Leeds, & Callis, no date, p. 3]." It was developed through the empirical procedure of selecting items and responses that differentiated between two groups of teachers who had been designated by their principals as being superior or inferior in their ability to maintain harmonious relations in the classroom, as described in a criteria list [Cook et al., no date]. High scores are interpreted as indicating permissive attitudes and low scores as indicating authoritarian attitudes.

Using the MTAI G. C. Beamer and Elaine W. Ledbetter found that MTAI scores differed by experience level for both elementary and secondary teachers (Beamer & Ledbetter, 1957). The teachers with two to five years experience had the lowest mean scores of any experience grouping. In 1950 R. Callis (1950) found that scores on a slightly altered form of the MTAI decreased significantly after the first six months of teaching. In 1959 H. P. Day (1959b) found a decrease after student teaching and another decrease after one year of teaching experience. In 1960 W. Rabinowitz and I. Rosenbaum (1960) found a substantial decrease in MTAI scores after three years of teaching experience. (These three studies, it should be noted, did not come from a limited

geographical area; they came from the Midwest, the Southeast, and the Middle Atlantic regions, suggesting national applicability for their results.) Rabinowitz and Rosenbaum (1960) describe the situation this way:

> Taken at face value, the changes in responses indicate that in the three years between testings the teachers became less concerned with pupil freedom and more concerned with establishing a stable, orderly classroom, in which academic standards received a prominent position. The change was accompanied by a decline in the tendency to attribute pupil misbehavior or academic difficulty to the teacher or the school. . . . Items that seem to reflect cynicism, hostility, or punitiveness showed little change; the generally accepting view the student teachers expressed toward pupils seemed stable [pp. 317, 319].

Other Instruments

Using the Pupil Control Ideology Form, a device similar to the MTAI, Wayne K. Hoy (1968, p. 318) found a significant change toward the custodial end of the scale after student teaching and again after one year of professional experience.

Elmer B. Jacobs used the Valenti-Nelson Survey of Teaching Practices as part of an investigation. He found that teachers tended to develop more "democratic" attitudes during their training in college and to develop more "authoritarian" attitudes during their student teaching experience (1968, p. 414).

Benjamin Wright and Shirley Tuska (1965) studied the effects of training and first year teaching on teachers' conceptions of themselves and their roles. The investigators found several significant changes in the way women high school teachers responded to a "Me as a Teacher" questionnaire. The women saw themselves as more impulsive and more

blaming, less happy, less confident, less obedient and less inspiring than they were before they began teaching (Wright & Tuska, 1965, p. 280). After another investigation of the same type, Wright and Tuska (1968) reported:

> Among a group of 210 women we find significant changes in attitudes during each time period. After training the women view themselves as less inspiring and less demanding. After six to nine months of regular teaching they view themselves as less inspiring still, but now as more demanding and also more mean [p. 299].

Summary

The emphasis in these studies has been on an increase in authoritarian attitudes, such as in the more demanding attitude discovered by Wright and Tuska, or in the concern for stable, orderly classrooms reported by Rabinowitz and Rosenbaum. Hostility and cynicism do not seem to change appreciably. Related to this is the fact that Rabinowitz and Rosenbaum found that for teachers in New York City the size of the decline in MTAI scores during the first three years of teaching was not related to the difficulty of the schools (as measured by the quality of students attending the schools) in which the teachers taught (1960).

Theoretical Framework

An input-process-output scheme provides a simple framework for analyzing the reported shift of teacher attitudes. Each beginning teacher is an input into the secondary school system; the system operates upon the beginning teachers for one year; and at the end of the process the beginning teachers emerge as experienced teachers, presumably with different characteristics from those they originally brought to the system.

The operation of the system upon the input can be expected to vary, depending upon the initial characteristics of each teacher within the system. However, that variation will occur within a general tendency of the beginning teachers to conform to the cultural norms of the system, as they perceive its norms.

Socialization

That is, the main tendency involves the socialization of beginning teachers. According to Robert Merton (Merton, Reader, & Kendall, 1957):

> The technical term socialization designates the processes by which people selectively acquire the values and attitudes, the interests, skills and knowledge -- in short, the culture -- current in the groups of which they are, or seek to become, a member. It refers to the learning of social roles [p. 287].

P. A. Sorokin (1947) believes the socialization process to be not only conceptually possible but also operationally important to organizations. He asserts that "each occupation tends thus to remake its members in its own image [p. 211]."

If it is assumed that socialization is an important cause of attitudinal changes in first year teachers, three parameters are important. They are: first, the norms of the system as perceived by the beginning teacher; second, the attitudes the beginning teacher brings to the system; and third, the susceptibility of each beginning teacher to socialization.

Perceived System Norms. It must be noted that the beginning teacher is involved in a sampling problem. Cultural norms are a function of the attitudes of all the participants in a culture. No single obvious source of norms exists for the public school system. Because of the complexity of the norm system and the size of school systems,

each beginning teacher can observe only a small fraction of all the events that would be required to comprehend the norm system completely. Hence, the observations that each teacher makes of the norm system can be only a sample of the total universe of observations necessary for comprehensive knowledge of the norm system. The questions thus arise, do beginning teachers on the whole observe a representative sample of events, or are the observations of beginning teachers systematically biased, and what systematic changes of beginning teachers' attitudes result from the observations?

Dorothy Weston-Gibson (1965, pp. 335-336) has observed that teachers generally work in isolation from administrators and from other teachers. Almost all of the work of most teachers is unsupervised and unprogrammed and is performed without collaboration with or coordination by any other member of the staff. Contact of one teacher with another is thereby restricted to occasions apart from the classroom teaching duties that are the core of a teacher's work.

Because of their limited opportunity for interaction, teachers' intercommunications are likely to be devoted to topics of common interest with substantial dramatic or emotional affect. The anecdotal material in books like Up the Down Staircase and The Way It 'Spozed to Be (Kaufman, 1964; Herndon, 1968) suggest that disciplinary activities--emotionally appealing and of common interest--are a favorite topic of conversation, especially when the advice of experienced teachers is offered to beginning teachers. If this is the case, the beginning teacher's sample of school culture will not be representative of the total culture, but will be systematically biased toward matters

related to discipline and control, leading the beginning teachers to infer the presence of more authoritarian norms than actually exist. From these premises, it follows that the less the contact of a beginning teacher with experienced teachers, the less likely it is that the contacts will produce a balanced sample of responses; consequently, inaccurate inferences regarding teacher norms will be made by the beginning teacher.

The argument to this point is that the attitudes of beginning teachers are affected by the socialization process. This process has three parameters: the norms of the system as perceived by the beginning teacher; the attitudes the beginning teacher brings into the system; and the susceptibility of the beginning teacher to socialization. With respect to the first parameter it has been argued that the institutional environment of the beginning teacher may lead to a biased sampling of the school culture, the bias leading to an inference of more authoritarian norms than actually exist.

Attitudes Brought to the System. It must be observed that adult attitudes over periods as short as a year are generally stable. S. Krech and R. S. Crutchfield (1948) refer to attitudes as "an enduring organization of motivational, emotional, perceptual, and cognitive processes with respect to some aspect of the individual's world [p. 152]." The structure and operation of the authority system in public schools is surely a matter of sufficient concern to beginning teachers, most of whom have already worked within the public school system for at least twelve years, to warrant the belief that their attitudes form an enduring part of their personalities. While a year's experience in a full time professional position can be expected to affect a person's

attitudes in some way, the best prediction of his final attitudes is likely to be the attitudes he brings to the position. Thus, a socialization process like that described earlier might be useful for predicting changes in beginning teachers' MTAI scores but not for predicting ultimate scores in the absence of information about the teachers' initial attitudes.

Another point to be considered is that teachers also have attitudes toward socialization. A teacher's emphasis on scholarship and subject matter might reduce the interest he takes in observing the attitudes of other teachers, thus reducing his susceptibility to socialization.

Susceptibility to Socialization. This parameter can be divided into two components: (a) previous experience that affects socialization, and (b) experience occurring during the school year that affects socialization into the educational system.

The "previous experience" component might include the type of college attended by the beginning teachers. If the teachers were prepared at a teachers' college, they may have had substantial contact with experienced teachers during their training, and they may have taken on the role of professional teacher at that time. Graduates of universities and liberal arts colleges, on the other hand, might be expected to have had less contact during their college years with public school systems and personnel and to have less identification with the common school teaching profession than have the teachers' college graduates. If these assumptions about prior socialization are correct, the teachers' college graduates can be expected to change less during their first year of teaching than do the other beginning teachers.

Two major qualifications for this position are necessary, however. First, student teaching experiences differ at each institution of higher learning and sometimes within an institution. Teacher participation in the extended internship experiences that are now available at the University of Washington, for example, would reverse the assumption that university students have little contact with public common schools. Second, the beginning teachers in this study are secondary school teachers. At all types of institutions of higher learning, secondary school teacher preparation is generally oriented more toward subject matter preparation than toward educational professionalism. This common characteristic might overwhelm any inter-college differences.

Another element in beginning teachers' histories that may influence their susceptibility to socialization is their prior employment experience. Henry A. Miller (Hall & Lindzey, 1957) speaks of a "need for roleship (p. 191)." If an individual already has an established role, e.g., as any army officer, he may not need to create an altogether new role. Such people could be expected to change less during their first year of teaching than those for whom teaching is the first adult vocational role.

The second component, experiences during the first year of teaching, also affects susceptibility to socialization. An individual who maintains important contacts outside the public school system (that is, whose role referents are outside the system) will be little changed by the institutional socialization process. In short, if a teacher devotes much attention to society outside the school system, he will probably change less than a teacher who concentrates his attentions upon the system.

Exception. A point should be reconsidered here. Since a fundamental assumption of this argument is that beginning teachers observe a systematically biased sample of experienced teachers' behavior, the argument is not here applied to those teachers who have a great deal of contact with other teachers, since the large amount of contact would serve to acquaint the beginning teachers with the real norms of their associates. As a first approximation one can say that the amount of change of beginning teachers' attitudes toward authoritarianism will be inversely proportional to the amount of contact they have with other teachers.

The situation may be complicated by a beginning teacher's involvement in a clique which may be important in forming the teacher's role expectations but may not be representative of the larger system. Because of the tendency for cliques to form on the basis of shared attitudes and to reinforce those attitudes, analysis of the situation by conventional statistical procedures based on random selection of non-interacting sample elements would not be adequate for the purposes of this study; however, the complication of cliques will be assumed to be minor, and under this restriction the first approximation stated above describes the situation.

Premises

The premises underlying this research are:

1. Development of a particular desirable psychological climate in a school can be fostered by selecting teachers who value the characteristics of that particular climate.

2. A policy of selecting teachers in such a way as to promote a particular psychological climate can be implemented

effectively to the degree that the teachers' future attitudes can be predicted.

3. Research indicates that beginning teachers' attitudes along the important permissive-authoritarian dimension change during their first year of teaching.

4. A theory of socialization based upon an input-process-output model may explain the observed change of teachers' attitudes.

Potential Value of the Research

The purpose of the research is to investigate conditions that the theory suggests are related to beginning teachers' attitude changes. If significant correlations are discovered between attitudinal changes and the conditions being investigated, administrators will be better able to predict the future attitudes of teachers and to that extent will be better able to select teachers for their particular schools. Furthermore, discovery of significant correlational relationships can point the way to experimental research involving the manipulation of the conditions toward the end of increasing the probability of desirable changes of teacher attitudes. The relationships investigated in the research, as they are suggested by the theory, are described in detail in the following list of hypotheses.

Hypotheses

The hypotheses are constructed to test each part of the theory. They are stated here in a positive form for the sake of clarity; however, they will be recast into the null hypothesis form in the analysis of the data. The first question, upon which all the other hypotheses rest, is: Do teachers become more authoritarian during their first year of teaching?

Hypothesis 1: Beginning teachers are more authoritarian (as evidenced by lower MTAI scores) at the end of their first year of teaching than at the beginning of that year.

The theory suggests that faculty attitudes affect beginning teacher attitudes.

Hypothesis 2: Beginning teachers become more authoritarian as the experienced members of their faculty are more authoritarian.

Hypothesis 3: Beginning teachers become more authoritarian as their principals are more authoritarian.

The theory suggests that beginning teachers perceive their faculties and principals as holding more authoritarian attitudes than is really the case.

Hypothesis 4: Beginning teachers predict lower average MTAI scores for their faculties than actually occurs.

Hypothesis 5: Beginning teachers predict lower MTAI scores for their principals than actually occurs.

The theory suggests that a teacher's end-of-the-year attitudes are strongly influenced by the attitudes he brings to the position.

Hypothesis 6: Beginning teachers' beginning-of-the-year MTAI scores are positively related to their end-of-the-year MTAI scores.

Hypothesis 7: Beginning teachers have less change toward authoritarianism as their college grade point averages are higher.

Hypothesis 8: Beginning teachers have less change toward authoritarianism as their subject matter backgrounds are more extensive.

The theory suggests that beginning teachers' susceptibility to socialization is related to their prior experience.

Hypothesis 9: The career vocational experience of beginning teachers is negatively related to change of attitude scores.

Hypothesis 10: Beginning teachers from teachers' colleges have less change toward authoritarianism than beginning teachers from liberal arts colleges.

Hypothesis 11: Beginning teachers from teachers' colleges have less change toward authoritarianism than beginning teachers from universities.

Hypothesis 12: Beginning teachers from teachers' colleges are more authoritarian at the beginning of the year than beginning teachers from liberal arts colleges and universities.

Hypothesis 13: The age of beginning teachers is negatively related to the size of the change of attitude of the teachers during the year.

The theory suggests that experiences during the school year can affect teachers' susceptibility to socialization.

Hypothesis 14: Beginning teachers have less change toward authoritarianism as they spend more time with non-family, non-teacher friends.

The theory suggests that beginning teachers observe a sample of faculty and principal behavior that is biased toward authoritarian acts and that these observations influence their attitude changes.

Hypothesis 15: Beginning teachers who share classroom responsibilities with another teacher have less change toward authoritarianism than do other teachers.

Hypothesis 16: Special curriculum project activity of beginning teachers is negatively related to change of attitude scores.

Hypothesis 17: Activity of beginning teachers in college or in in-service training courses during the school year is negatively related to change of attitude scores.

Hypothesis 18: As beginning teachers belong to more professional associations they have less change toward authoritarianism. (In this context the national, state and local associations of the National Education Association are taken to be a single association. Parent-Teacher Associations are not taken to be professional associations.)

Hypothesis 19: The larger the number of teachers in the school, the more beginning teachers change toward authoritarianism.

Hypothesis 20: The larger the number of department meetings held during the year, the less beginning teachers change toward authoritarianism.

Hypothesis 21: The more teachers in the school who teach the same subjects as the beginning teacher, the less the beginning teacher changes toward authoritarianism.

Hypothesis 22: The greater the number of chaperone type duties performed during the year by beginning teachers, the more they change toward authoritarianism.

Hypothesis 23: The more times beginning teachers observe other teachers in classroom teaching situations, the less beginning teachers change toward authoritarianism.

Hypothesis 24: The amount of coaching activity of beginning teachers is negatively related to change of attitude scores.

Hypothesis 25: Beginning teachers become less authoritarian as they spend more time with other teachers.

Hypothesis 26: Beginning teachers with principals who are perceived as using the autocratic style of decision making change more toward authoritarianism than do beginning teachers with principals who are perceived as using a laissez-faire style.

Hypothesis 27: Beginning teachers with principals who are perceived as using the autocratic style of decision making change more toward authoritarianism than do beginning teachers with principals who are perceived as using a participative style of decision making.

Hypothesis 28: Beginning teachers with principals who are perceived as using the laissez-faire style of decision making change more toward authoritarianism than do beginning teachers with principals who are perceived as using a participative style of decision making.

Hypothesis 29: The greater the number of principal's observations of a beginning teacher, the more the beginning teacher changes toward authoritarianism.

Hypothesis 30: The greater the number of supervisory (non-principal) observations of a beginning teacher, the more the beginning teacher changes toward authoritarianism.

The hypotheses listed to this point have all been suggested by the theory described earlier. The theory attempts to explain changes of beginning teachers' attitudes along the permissive-authoritarian dimension. It uses two concepts: socialization and limited, biased observations of the rest of the faculty by the beginning teachers. The theory does not suggest any specific relationship between certain conditions (i.e., sex, marital status, level of teaching, per pupil

expenditure, and perceived academic competence of classes) and the teachers' permissive-authoritarian attitudes. If any significant relationships were to hold between these conditions and teachers' attitude changes, the proposed theory would have to be considered inadequate. The rest of the hypotheses are designed to examine the relationships between each of these conditions and beginning teachers' attitude changes.

Hypothesis 31: Changes of beginning teacher permissive-authoritarian attitudes are not related to sex.

Hypothesis 32: The marital status of beginning teachers is not related to changes of beginning teacher permissive-authoritarian attitudes.

Hypothesis 33: Changes of permissive-authoritarian attitudes are not related to whether a teacher teaches at the junior high school level or at the senior high school level.

Hypothesis 34: The amount of money spent per pupil by each district is not related to changes of beginning teacher permissive-authoritarian attitudes.

Hypothesis 35: The greater the proportion of "D" and "failure" grades to all grades given at the end of the first semester, the more the beginning teacher changes toward authoritarianism.

Scope of the Study

Population

The population of the study included all the beginning secondary school teachers in several school districts in or near Seattle during the school year 1970-1971 and the principals and faculties of those beginning teachers.

Major Limitations to the Scope

1. Participation was voluntary on the part of the teachers, principals and school districts.

2. The study depends entirely upon the self-report of the participants for descriptions of both attitudes and activities.

3. The study was conducted during a year when economic conditions forced some of the districts included to hire fewer new teachers than they had hired in preceding years, so the total population was not necessarily representative of recent sets of beginning teachers in the seven districts.

4. The study is correlational rather than experimental. While the results can be suggestive of relationships between variables in the study, strict cause and effect relationships cannot be argued on the basis of correlations. Hence, the study must be considered exploratory rather than definitive.

Summary

The atmosphere of a school is largely determined by the attitudes of the school's faculty members. An administrator who seeks to develop what he considers to be a desirable psychological environment in his school can promote that goal by selecting teachers whose attitudes will accord with the desired school atmosphere. However, the attitudes of beginning teachers change during their first year of professional experience, particularly along the permissive-authoritarian dimension. Information enabling administrators to predict the size and direction of beginning teacher attitude change can be useful in the process of selecting teachers who will continue to contribute positively to the school atmosphere.

To explain beginning teacher attitude change and thereby to guide the investigation of conditions related to attitude change, a theory based on the well-established principle of socialization is proposed. Three parameters important to the socialization process are specified in the theory. First are the norms of the system as perceived by the beginning teacher; second, the attitudes the beginning teachers bring

to the system; and third, the susceptibility of each beginning teacher to socialization.

The first parameter is affected by the sample of observations that beginning teachers can make of experienced teachers' behavior. That sample may be systematically biased toward observations of matters related to discipline and control. Such bias might lead beginning teachers to perceive more authoritarian norms than actually exist. If the amount of attitude change of beginning teachers is proportional to the difference between the existing attitudes of the beginning teachers and the perceived attitudes of the experienced teachers, then the exaggerated perception of authoritarian attitudes can be expected to yield a commensurately exaggerated change toward authoritarian attitudes.

The second parameter considered important to socialization includes the attitudes beginning teachers bring to the educationai system. For example, a beginning teacher's beginning-of-the-year MTAI score may be expected to be a primary predictor of the teacher's end-of-the-year MTAI score.

The third socialization parameter is the teacher's susceptibility to socialization. This susceptibility can be influenced by prior experience that fulfilled the teacher's need for roleship or that partially completed the induction of the new teacher into the education profession. The susceptibility might also be influenced by experience during the first year of teaching. Extensive contact with the larger community can reduce the influence of other educators upon the beginning teacher, thereby reducing the socialization effect.

The theory outlined above suggests relationships that can be studied empirically. A list of hypotheses based upon the implications of the theory has been developed. The hypotheses derive from the theory, and they in turn serve to test the validity of the theory.

Certain limitations of the study must be noted. In particular, the study is based entirely upon the self-report of the participants. Also, the study is correlational, not experimental, so no cause and effect relationships can be determined by the study.

CHAPTER II

RESEARCH BACKGROUND

The Minnesota Teacher Attitude Inventory

Although several hundred reports involving the MTAI are available in the literature, only a selection of about forty that seem most important are discussed here. Almost all the articles cited for the MTAI in the Education Index during the last six years are considered, as well as several earlier studies that seemed to be of special interest.

Construction of the MTAI

Walter W. Cook, Carroll H. Leeds and Robert Callis completed the MTAI in 1951. They initially established a pool of 756 items about five areas:

1. the perceived moral status of children
2. classroom discipline
3. principles of child development and behavior
4. principles of education
5. personal reactions of the teacher.

They then asked school principals to each specify one or two teachers "whom the pupils liked very much, who had excellent working relations with pupils, and who had the personality characteristics essential to effective teaching [Cook et al., no date, p. 10]." Each was also asked to specify one or two teachers rated low in these qualities. The 100 "superior" and 100 "inferior" teachers responded to each of the 756 items on a five point scale ranging from "strongly agree" to "strongly disagree." The items were classified according to their power to discriminate between the groups of teachers. 239 items were retained. Another study was undertaken. It was generally similar to

the first study, except that the validity criteria included pupil rating of the teachers, principal rating of the teachers and expert observer rating of the teachers, and only 4th, 5th and 6th grade teachers were involved. 150 items are in the final instrument. All items have one or more response options that differentiated between "superior" and "inferior" teachers at the .05 level of significance using a Chi-square analysis.

The construction process was not entirely consistent. The first study used a single global estimate of teachers being superior or inferior. The second study used three comparatively lengthy and specific rating instruments. The first study used teachers in grades 1 through 12. The second study used teachers in grades 4 through 6. Furthermore, criteria for final selection of items included five factors other than the discriminating power of the items. These factors were the consistency of the response patterns of the teachers, the clearness of the statements, the extent of content duplication, and, on the basis of another study, the extent to which reponses are influenced by professional education courses and by teaching experience. It seems unlikely that the process of selecting the final items from the original list of items could be replicated to give the same results.

Concurrent Validity

Interpretation of the MTAI must be based on the measured relationship of the inventory to other instruments, not on the intent of the authors. In the manual several correlational studies are described, of which two used the final form of the MTAI. With a population of 100 elementary

teachers and their classes there was a correlation coefficient of .46 between MTAI scores and principals' ratings of teachers, of .57 between MTAI scores and pupils' ratings of teachers and of .59 between MTAI scores and an unweighted composite of the three criteria. It can be noted that the MTAI correlated more highly with the composite than with any single criterion, that the correlations are all significant at the five per cent level or better, and that .59 is rather a high coefficient considering the complexity of the behavior under consideration. Furthermore, the .59 is considerably larger than correlations among the criteria. The principals' ratings-students' ratings correlation, for example, though statistically significant at the .005 level, was only .39 [Cook et al., no date, p. 14]. (The manual summarizes the study, and a more complete report is available in Leeds, 1952.)

The other study reported in the manual produced results similar to those described above except the coefficients were generally lower. The MTAI-composite criteria correlation was .46; the MTAI-principals' ratings correlation was only .19, which was still significant at the .05 level. [Cook et al., no date, p. 14].

The difference between the results of the two studies may, perhaps, be explained by the fact that the first was carried out in South Carolina and the second in central Missouri. There may be substantial geographical differences in responses to the MTAI and in principals' criteria for evaluating teachers, even when the principals use the same rating form. Norms are given in the manual for 20 groups of students and teachers, based on administration of the inventory to 3820 persons,

but geographical classification of the respondents is not provided. Also, the South Carolina study involved teachers in grades four through six, while the Missouri study involved teachers in grades four through ten.

Harry Stein and James Hardy (1957) at the University of Manitoba and Manitoba Provincial Normal School studied the concurrent validity question. The MTAI was validated against pupils' ratings and advisors' ratings to student teachers from the authors' institutions. The MTAI was significantly correlated (at the .01 level) with how well the pupils liked the student teachers, but the correlation with the pupils' ratings of the student teachers' effectiveness was not significant. Also, while the MTAI-advisors' ratings correlation was significant for the normal school people it was not significant for the university people. These two exceptions cloud the interpretation of the MTAI as a measure of teachers' professional quality. The study did produce an MTAI test-retest reliability coefficient of .88 for university student teachers and .92 for normal school student teachers, figures that reinforce the reliability of .93 reported by Leeds (1952) in the South Carolina study. Also, the MTAI versus combined pupils' and advisors' ratings correlation coefficient were significant at the .01 level.

In another concurrent validity study, Jack Williams and A. M. Fox (1967) related MTAI scores to evaluations of the student teaching performances of 205 students at Sam Houston State College and found no significant correlation. This finding is difficult to interpret, however, since the article specifies neither the validity nor the reliability of the criterion variable against which the MTAI was judged.

Another negative result was reported by Sister M. Innocentia Burkard (1965). Her population included 300 teachers in Midwest parochial (Catholic) schools and 720 pupils of the teachers. The pupils rated the teachers using the Diagnostic Teacher-Rating Scale (Amatore, 1950). The 20 top rated and 20 bottom rated teachers in grades 5 and 6, 7 and 8, 9 and 10, and 11 and 12 were compared with respect to MTAI scores. A significant difference, at the .05 level, occurred with the 7th and 8th grade groups. The other three pairs showed no significant differences. An item analysis of the 150 items in the MTAI produced eight items, only, that were answered differently by top and bottom teachers, at the .05 level of significance. (Note: Five per cent of 150 is 7.5, so the items may well be a residue of random processes.) The results of this item analysis conflicted with the published scoring key in almost every case.

Sister Burkard concluded that:

> In the Catholic schools that make up the sample of the present study, the MTAI had little power to discriminate between teachers rated high and those rated low by their pupils. This was particularly true in the intermediate grades and in the senior high schools. On these levels the mean scores of the well-liked teachers were no higher than the means of the teachers who were liked least [p. 227].

Yet another negative result comes from the research of Duane Sandgren and Louis Schmidt (1956). They used the MTAI scores and Ball State Teachers College Student Teaching Report scores of 393 student teachers. There was no significant difference between the mean Student Report scores of students scoring in the top and bottom thirds of the MTAI score distribution. The authors assert that:

> Because there was no apparent relation between MTAI scores and critic teachers' ratings the MTAI cannot be used to predict probable success in teaching if the ratings made by public school critic teachers on the Student Teaching Report are used as a criterion of success [p. 679].

Summary of the Results on Concurrent Validity. Concurrent validity was established in South Carolina, Missouri and Manitoba. In Texas, in Midwest parochial schools, and in Sandgren's population the null hypothesis could not be rejected. There does seem to be concurrent validity to the MTAI, but its presence cannot be reliably observed. However, in interpreting these studies it must be borne in mind that the results may say more about the other instruments than about the MTAI.

Predictive Validity

The presence of predictive validity seems to be better established than the presence of concurrent validity, assuming that the two can be considered separately. Harry Day (1959a) followed a group of college students through their first year of teaching. They completed the MTAI after student teaching in their senior year and again after their first year's experience. They were rated by their principals and supervisors during the experience. (For a description of the rating instruments see Leeds, 1952, p. 401.) The first MTAI scores correlated .28 with principals' ratings, significant at the .05 level. (Note: Significance tests are not specified in the article, so this and the following statement about significance are interpretations from the published data.) The first MTAI scores correlated only .18 with

supervisors' ratings of the teachers, a figure that is not significant. These results must be qualified by consideration of the small percentage of students who remained in the study. 196 students began the study; 61 did not enter teaching; 26 of those who taught did not continue participation in the study; of the remainder 39 could not be counted because their principals or supervisors failed to cooperate, reducing the final sample to 70 persons -- 36 per cent of the original group.

Another prediction study that obtained statistically significant predictive results was reported by Carroll Leeds (1969), one of the authors of the inventory. His research population originally included 1200 college students at the beginning of their education course sequence. The final sample of 100 experienced teachers was measured fifteen years later. Leeds used principals' ratings, pupils' ratings, and outside observer ratings of the teachers as his criteria. The original MTAI scores correlated .27 with the composite evaluation of teaching effectiveness obtained fifteen years later. That coefficient is significant at the .01 level. The beginning and ending MTAI scores correlation coefficient was .37, again significant at the .01 level.

Some questions can be raised about the Leeds study described above, since he reduced his population from 1200 to 100, but he does not specify how the final sample was selected other than that they had graduated and were teaching, with at least one year of experience, during the last year of the study. The possibility of a biased sample selection must be considered. A weak indicator that the sample was not biased is the correlation between first and last MTAI scores, .37.

Barry Munro (1964) carried out a study that could just as well be classified as concurrent instead of predictive. He administered the MTAI to 152 students in a one year teacher certification program, for liberal arts graduates, and to 32 industrial arts education undergraduates. He compared their scores to their student teaching ratings and faculty advisors' ratings obtained later. For the graduates, the MTAI scores correlated .29 to their student teaching ratings and .19 to their advisors' ratings, significant at the .01 and .05 levels respectively. The correlation for the industrial arts students was not significant.

Walter W. Cook, Cyril J. Hoyt and Alf Eikaas (1956) reported correlations between MTAI scores of college juniors and scores of the same people with two or three years of teaching experience as .45 and .43 for elementary and secondary school teachers respectively. In a similar study Hoyt and Cook (1960) provide correlation coefficients of .46 of elementary teachers and .40 and .38 for secondary academic and non-academic teachers, respectively. Leeds' result seems reasonably close to these figures. Harry Day (1959b) reported a correlation of .63 between MTAI scores of college seniors after student teaching and MTAI scores of those who continued to participate in the study after one year of teaching. The data required for more conclusive statistical tests is simply not available here.

Summary of the Results for Predictive Validity. Day found a coefficient of .28; Leeds found a coefficient of .27; and Munro, in a short-term student teaching study found a correlation of .29. These figures are remarkably consistent. They are all below

the concurrent validity figures of .59 and .46 reported in the manual. Pre-teaching and post-teaching applications of the MTAI seem to correlate from .38 to .63 depending on the length of times between applications.

Miscellaneous. One report relating MTAI scores to student-teaching ratings was not included with those above, since it does not seem to prove anything. 74 nursery-kindergarten-primary level student teachers at the University of Minnesota participated in the research (Fuller, 1951). Their MTAI scores-student teaching ratings correlation coefficient was only a nonsignificant .13. However, the mean MTAI score of the entire group was 102.2. According to the author of the report that figure is above the 99th percentile for prospective teachers enrolled at the University of Minnesota. According to the norms reported in the manual 102 is above the 80th percentile for graduating seniors majoring in Early Childhood or Elementary Education at Minnesota [Cook et al., no date, p. 8]. In either case the sample is truncated, and the calculated coefficient may not be a fair value for the larger population. The effect of truncating a sample is, of course, generally to reduce the magnitude of the calculated coefficient, possibly hiding a significant relationship in the larger population.

Comparisons with Other Measures

The rest of the studies described here can be classified into three groups:

1. those relating the MTAI to other measures.
2. those analyzing the internal structure of the MTAI.
3. those using the MTAI as a criterion.

The MTAI and Other Measures. Research in the first group includes some rather simple studies. With a population of 42 senior males in physical education William Herman (1967) related MTAI scores to grade point averages in:

1. health and physical education courses
2. education courses, and
3. all college courses,

and to participation in athletics. He found no significant results.

K. M. Evans (1967) found that British theology students and graduate teacher trainees differ from engineering students with respect to the MTAI. He also found that the teacher trainees differ from experienced teachers. This really should not have happened, according to the authors of the inventory. In their description of the process of obtaining norms they say:

> Length of teaching experience was not significantly related to teacher attitudes in any of the analyses, indicating that the elimination of items negatively correlated with experience from the published form of the Inventory had achieved its purpose [Cook et al., no date, p. 10].

Stein and Hardy (1957) of Manitoba confirmed the author's assertion.

> The MTAI scores were found to be unaffected by age or teaching experience, indicating that the authors had apparently successfully eliminated those items which would have given weight to experience [p. 336].

Correlation with Experience/Non-experience. However, Cook, Hoyt and Eikaas (1956) reported pre-and post-experience scores for seven categories of teachers, every one showing a decrease in average score

with experience. Hoyt and Cook (1960) reported similar scores for eight categories of active teachers. Again, every group showed a decrease with experience. John Giebank (1967) reported a significant MTAI-teaching experience correlation of -.40. Harry Day (1959b) found a decrease in MTAI scores after student teaching and another decrease after one year of teaching experience. W. Rabinowitz and I. Rosenbaum (1960) found a substantial decrease after three years of teaching experience. The norms published in the manual show experienced teachers scoring lower than graduating seniors in education for every percentile level of every teacher classification [Cook et al., no date, pp. 8-9].

Other Correlations. It can be noted, in passing, that the MTAI has been related to the Hostility and Pharisaic-Virtue scales of the Minnesota Multiphasic Personality Inventory (Stein & Hardy, 1967), to the Biographical Information Blank of K. DeYoung and R. E. Wilk (Lantz, 1965), to the Social Service area of the Kuder Preference Record (Vocational Form CM) (Beamer & Ledbetter, 1957), to the Leader Behavior Description Questionnaire (Fox, 1967), to the Taylor Manifest Anxiety Scale, the Edwards Personal Preference Schedule and Bills' Index of Adjustment and Values (Teigland, 1966), and to the 16 Personality Factor Questionnaire, the American College Testing Program English, Mathematics Social Studies and Natural Science sections, the Educational Testing Service Advanced Vocabulary Test, V-4, and the Culture Fair Intelligence Test (Morrison & Romoser, 1967).

Other Instruments -- Flanders Interaction Analysis. John Giebank (1967) correlated the MTAI with categories of the Flanders Interaction Analysis Instrument and did not find any significant results.

The Flanders instrument as used by Giebank provides for the observation of teaching behavior by an observer in the classroom who categorizes each short time period (say each three seconds) as being dominated by:

1. indirect teacher talk (e.g., asking students for opinions)
2. direct teacher talk
3. student talk
4. silence or confusion
5. continued use of acceptance and praise by teacher
6. continued use of direction and criticism by teacher.

Giebank says:

> It was anticipated that those teachers who scored high on the MTAI would generally be more supportive, permissive, and student-centered than those who scored low. Thus the higher a teacher scored on the MTAI, the more class time would be occupied with student talk and the more time the teacher would spend eliciting student participation by talking indirectly and by making supporting and accepting statements. In contrast, it was expected that those teachers who scored low on the MTAI would be more likely to try to maintain control of the classroom through the use of specific directions and criticisms and that, generally, they would be more likely to talk directly to the students rather than try to engage them in a more indirect fashion. Since teachers who obtain high MTAI scores should be attuned to the needs of their students, it was expected that there would be fewer periods of silence and confusion occurring in their classrooms than in those of teachers scoring low [p. 235].

On the twelve MTAI-Flanders categories correlation coefficients computed none were as large as the .38 required for significance. Giebank asserts that "the main conclusion that could be drawn was that

there was no relationship between the attitude measured by the MTAI and observed teacher behavior [p. 236]." He goes on to insist that the MTAI has no value as a tool for teacher selection.

His research cannot be considered conclusive; it is more like a dramatization of the need for convincing research. Giebank had only 27 teachers in his study. The small sample meant that a large correlation value was required in order to establish significance. (Giebank might argue, of course, that the coefficient must have quite a large value in order to be important as well as merely statistically significant.)

The study had other faults. Each teacher's principal was used as a rater. The principal's presence in the classroom, with its implied requirement that no embarrassing incidents occur while he is in the room, might tend to distort the teacher's behavior. Also, the raters only achieved 86 per cent agreement on categorizing behavior during practice. Their reliability in the field, viewing their teachers' behaviors through the filters of preconceptions, might well be less than 86 per cent. Further, the raters only observed each teacher during two 20 minute intervals, so that the teaching activities observed may not have been representative of the total year's activities. (In the same vein, it is commonly accepted that several visits to the classroom are necessary before the observation results settle into a stable pattern.) The test-retest MTAI reliability of .80 reported by Giebank is less than has been reported elsewhere, such as by Stein & Hardy (1957). This suggests the presence of some complicating factor. In short, there is ample reason for skepticism as to the value of the research.

While his research may be weak, Giebank's final comments are worth considering.

> Although in this paper the MTAI has been singled out as a case in point, similar comments could probably be made about other instruments that through verbal self-report yield a single measure presumed to measure one global attribute thought to underlie overt observable behavior. It is likely that interest in developing devices, including attitude inventories, to assist in the teacher selection and training process will remain high, and persistent efforts will be directed toward increasing the understanding of teachers. Consequently, it would seem worthwhile to acknowledge explicitly that the ultimate criterion -- teaching success -- is the result of the interaction of many kinds of teacher behavior. This kind of formulation would encourage the development of multi-dimensional measures predicting a variety of behaviors. Although this multivariate approach is more complicated than the unidimensional tack most often taken in the past, it is likely in the long run to prove more fruitful for both understanding and prediction. [p. 239].

Internal Analysis of the MTAI

No comprehensive multivariate study of the type suggested above was discovered in a review of the recent periodicals. On a much smaller scale, however, an effort has been made to transform the MTAI from a measure of a single dimension into a measure of multiple dimensions through the use of factor analysis.

John Horn and Lee Morrison (1965) used parcel factor analysis with responses to the MTAI. They concluded that the inventory measured five factors. The labels they attached to the factors are descriptive, although rather overdrawn. Factor I, titled "Traditionalistic vs. Modern Beliefs about Child Control," included items 12, 19, 21, 23, 24, 35, 50, 57, 63, 65, 76, 80, 92, 104, 110, 116, and 126. Factor II

titled "Unfavorable vs. Favorable Opinions about Children," included items 6, 22, 25, 29, 30, 37, 38, 74, 77, 83, 94, 106, 113, 114, 119, 121, 124, 127, 128, 130, 132, and 134. Factor III, titled "Punitive Intolerance vs. Permissive Tolerance for Child Misbehavior," included 85, 86, 88, 100, 103, 115, and 129. Factor IV, titled "Aloof vs. Involved (Sensitive, Empathic) Attitude Toward Children," included items 7, 14, 31, 67, 111, 122 and 139. And, Factor V, titled "Laissez-Faire vs. Controlling Attitude Toward Children," included items 15, 64, 93, and 140. The factors have intercorrelations with each other ranging from .16 to .48. Unfortunately, no interesting studies using these factors have been reported. (One study only, not very interesting, was discovered (Morrison & Romoser, 1967)). The list of factors discovered by Horn and Morrison is somewhat parallel to the set of areas covered in the construction of the inventory, but a comparison of the areas with the factors shows a distinct difference in the tone of the titles used. The authors' categorization of items by area is not immediately available, so a direct comparison of factors and areas cannot be made here.

Another aspect of the internal analysis of the MTAI is its susceptibility to "faking." One ingenious study was performed by Ernest McDaniel (1964) using the psychological identification of subjects with people portrayed in photographs. The results are not sufficiently related to other results or to theory to be capable of interpretation at this time. More conventional research reported by Philip Rossi, Carmine Yengo and William Boyd (1966) built upon the results of two previous studies (Callis, 1950; Rabinowitz, 1954). The conclusion

reached is that the MTAI can be "faked" if a specific type of teacher is presented to the subjects as the ideal. That is, the subjects can easily respond as if they were an ideal "Progressive" or an ideal "autocrat." The inventory cannot be "faked" if the instructions are only to make a high score or to do as well as possible, the subjects presumably assuming that the "right" answers must be identical with their beliefs and thereby tending to answer honestly.

The MTAI as a Criterion

The final group of studies used the MTAI as a criterion measure. In some cases the studies are practically indistinguishable from simple instrument correlation work. In most cases the results are of interest only as representatives of possible uses of the MTAI rather than because of any important contributions to knowledge about the MTAI.

The MTAI has been used as the criterion for student teaching (Campbell, 1967), for the course work and the student teaching of the education program (Muus, 1969; Evans, 1967), for comparing television and conventional instruction (McDaniel & Filiatreau, 1965), for the influence of student teachers upon their cooperating teachers (Rosenfeld, 1969), for the competence of teachers in psychology (Jean & Deignan, 1968), for the evaluation of mental health workshops (Clos, 1966), for the evaluation of a course on current topics in education (Anderson, 1967), and for the effectiveness of summer camp counselors (Summers, Shuster, & Shuster, 1969).

Summary

The Minnesota Teacher Attitude Inventory was developed in 1951. Items were selected for the inventory primarily on the basis of each item's power to discriminate between a group of 100 teachers rated "superior" by their principals and a group of 100 teachers rated "inferior" by their principals. Secondary criteria for the inclusion of items in the instrument included the clearness of the statements, the consistency of the teachers' response patterns, and the extent to which the content of one statement duplicated the content of another statement.

During the 21 years since its creation a great deal of research has involved the MTAI. The research can be divided into five major categories: (a) studies of concurrent validity; (b) studies of predictive validity; (c) studies relating the MTAI to other measures; (d) studies analyzing the internal structure of the MTAI; and (e) studies using the MTAI as a criterion measure.

In the concurrent validity research correlations between the MTAI and teachers' effectiveness ratings ranged from .59 to non-significant. The highest correlation figures were obtained by the authors of the inventory using a composite score of principals' ratings, expert observers' ratings and pupils' ratings of the teachers as the validating criterion. (Split-half reliability was reported to be .93.) Other studies using various teacher rating procedures were unable to obtain high correlation coefficients, and in several cases were unable to reject the null hypothesis of no relationship between the MTAI and the criterion measure.

Investigators of the predictive validity of the MTAI have reported correlation coefficients of about .28 when MTAI scores of college students were compared with ratings of the same people later as teachers. The correlation of MTAI scores of college students to the MTAI scores of the same people after some teaching experience ranged from .4 to .6 in various studies depending upon the length of the time interval intervening between the applications of the MTAI. (Test-retest reliability coefficients of about .9 have been reported when the intervening time interval was comparatively short.)

Some studies related the MTAI to diverse other variables not ordinarily considered to be validity criteria. For example, MTAI scores declined with the age of the teachers according to several reports. MTAI scores are not significantly related to scores on Flanders interaction analysis categories, according to another report.

An analysis of the internal structure of the MTAI was carried out in one investigation Five factors involving 57 items were discovered in the MTAI. Other investigations were concerned with the "fakeability" of the MTAI. The results indicate that respondents to the MTAI can easily respond with a particular set, but they cannot "fake" the inventory if the only clue they are given is that they are to do "as well as they can."

Finally, the MTAI has been used as a criterion measure in several studies. The variety of studies is suggestive of the great number of ways in which the MTAI might be used. However, the difficulty with which the MTAI may presently be interpreted implies that use of the MTAI as a criterion measure at this time is premature.

After consideration of the research discussed above, one is still in some doubt as to the value of the MTAI. It seems to have good split-half and pre-test/post-test reliability. It seems to have some predictive validity, but its concurrent validity seems to be in doubt, assuming that the two concepts can be separated. The MTAI has been related, tenuously, to many other instruments, leading to increasing richness of interpretation of scores. The inventory itself seems to be a multidimensional measure, according to factor analysis. Although the past has been cloudy and contradictory, the future still holds some promise for the MTAI.

CHAPTER III

PLAN OF RESEARCH

Research evidence indicates that beginning teachers change their attitudes in an authoritarian direction during their first year of teaching. This change may present a problem to administrators who must select teachers for long term positions, since the teacher's attitudes that impress the administrator in September may not survive till June. Two questions arise from the problem. The first: "Overall, how big is the change of attitude?" The second: "What conditions can be used to predict the size of the change for specific groups of teachers?" The plan of research described below was designed to lead to answers to these questions. Topics discussed in the plan are the research population, the research sample, the procedure for collecting data, the research variables, limitations of the data collected, and the method of analyzing the data.

Research Population

The population of the study consists of three groups:

1. Beginning Teachers: all the secondary school teachers in seven school districts in and near Seattle who had no professional teaching experience (student teaching excepted) prior to the academic year 1970-71.

2. Experienced teachers: all the full-time teachers (in 1970-71 in any school that employed a person who belonged to the Beginning Teachers population group.

3. Principals: all the principals (in 1970-71) of schools that employed people who belonged to the Beginning Teachers population group.

The target population of the study is the Beginning Teachers group. The Experienced Teachers and Principals groups are included because of their possible effects upon the attitudes of the target population.

The population involves only secondary school personnel because secondary and elementary school teachers may be affected differently by the initial teaching experiences, and inadequate manpower was available to study both groups adequately. The MTAI manual reports mean scores for elementary school teachers and for comparable secondary school teachers that differ significantly at the less than .001 level. (The specific categories listed are "Elementary Teachers Systems with 21 or more teachers -- 4 years training" and "Secondary Teachers -- Academic -- 4 years training.") However, no distinction is made in the manual between junior high school and senior high school teachers, and the two groups are pooled in the target population of this study.

The seven school districts were chosen to obtain the maximum population within an area that could be covered by the investigator within the available time. All the data were collected during the 1970-1971 academic year.

Research Sample

It was not possible to obtain the participation of the entire research population. The number of participants was reduced by four factors.

1. In each school district the superintendent or his representative had to authorize the research. One of the seven school

districts refused the authorization. One other allowed only limited contact with its teachers.

2. In each secondary school the principal had to agree to participate in the research. Two secondary school principals did not agree to participate, so their teachers were not represented in the research sample.
3. Each individual member of the research sample had to voluntarily agree to participate. No individual was promised any financial reward for participating. Every principal made it clear that each teacher was entirely free to participate or not, as each saw fit. Some teachers decided not to participate at all; others decided to discontinue participation during the course of the research.
4. The full population of experienced teachers was too large to study in its entirety. A sample of five experienced teachers from each school was used to represent the total faculty of each school. Teachers declining to participate were replaced in the sample.

The total population of beginning teachers in the seven districts that were asked to participate was 177. After processing the research proposal through the administrative channels of each school district, contact with eighty-six teachers was permitted. Sixty-eight, or 79.1 per cent, of those contacted provided substantially all of the information requested of them. The sixty-eight teachers represent 38.4 per cent of the total population. Table I shows the distribution of the sample by major teaching field.

TABLE I

BEGINNING TEACHERS DISTRIBUTED BY MAJOR TEACHING FIELD

Field	Number of Beginning Teachers
Art	4
Business Education	3
Foreign Languages	6
Girls' Health and Physical Education	4
Home Economics	8
Industrial Arts	2
Language Arts	15
Mathematics	4
Music	3
Science	10
Social Studies	4
Special Education	5
Total	68

MTAI scores were provided by twenty-nine of the thirty-four principals who were originally personally invited to participate, one of whom declined to participate in any way. The twenty-nine responses represent 87.9 per cent of the actively participating principals.

Two hundred thirteen experienced teachers were asked to respond to the MTAI. Of these, 146 provided usable information, a return of 68.5 per cent. The 146 teachers represent an average of 4.4 experienced teachers per school.

Procedure for Collecting Data

Administration of the MTAI. The Minnesota Teacher Attitude Inventory was administered four times to the beginning teachers, once to the principals of the beginning teachers, and once to a sample of experienced teachers from each participating school according to the schedule in Table II.

TABLE II

SCHEDULE OF MTAI ADMINISTRATIONS

	September through December	January through March	May through June
Beginning Teachers:	First Beginning Teachers' MTAI	Second Beginning Teachers' MTAI	Third Beginning Teachers' MTAI
			Fourth Beginning Teachers' MTAI
Principals:			Principals' MTAI
Experienced Teachers:			Experienced Teachers' MTAI

In the first, second and third applications of the MTAI to the beginning teachers, the teachers were asked to respond as they themselves felt. In the fourth application, a randomly selected half of the beginning teachers was asked to respond to the MTAI as if they were the average teacher in the faculty, and the other half of the beginning teachers was asked to respond as if they were the principal.

While it would have been desirable to restrict the periods during which the MTAI was administered, the necessity of accommodating to the participants' own time schedules made such restriction impracticable. The first administration of the MTAI was especially prolonged since that period included the solicitations of participation in the project as well as the administration of the inventory. In contrast, the administration of the MTAI to three groups of people in May and a small part of June was facilitated by the contacts made with the schools during the previous eight months.

Teacher and Principal Questionnaires. Each beginning teacher was asked to respond to three questionnaires prepared especially for the study. Also, information concerning school settings was obtained from the principals. The schedule of questionnaires was noted in Table III.

TABLE III

SCHEDULE OF QUESTIONNAIRE ADMINISTRATIONS

	September through December	January through March	May through June
Beginning Teachers:	Teacher Questionnaire One	Teacher Questionnaire Two	Teacher Questionnaire Three
Principals:	Principal Questionnaire One		Principal Questionnaire Two

The questionnaires are presented in the appendices.

At no time were any members of the population told about the formal hypotheses of the study. They were informed only that the research dealt with teacher attitudes and their correlates, as was soon obvious from the instruments used in the study.

Research Variables

The information gathered in the study involved MTAI scores as a dependent variable and various teacher and institution characteristics as independent variables. The independent variables studied are listed below in four categories.

A. Teacher and Position Characteristics:

1. Sex: Is the teacher male or female?
2. Marital Status: Is the teacher presently married, single, divorced or widowed?
3. Training Institution: Did the teacher graduate from a university, a liberal arts college, or a teachers college? (In Washington state there are at present three teachers colleges: Western Washington State College, Central Washington State College and Eastern Washington State College. There are two universities: the University of Washington and Washington State University. There are several liberal arts colleges, including Seattle Pacific College, Seattle University, the University of Puget Sound and Pacific Lutheran University. If a teacher graduated from an institution that is not listed here, its category was determined by analogy to the institutions named above.)

4. Scholarship: What was the total undergraduate grade point average of the teacher in college?
5. Specialization: For each class the teacher is teaching, is his preparation in that field less than 10 quarter hours, 10 to 19 quarter hours, 20 to 29 quarter hours, 40 to 49 quarter hours, 50 to 59 quarter hours, or 60 or more quarter hours of graduate and undergraduate course work?
6. Age: Is the teacher 26 years old or younger, or is he older than 26, as of the first of September, 1970?
7. Experience: Has the teacher previously held a full-time position in any field other than the military for as long as 12 consecutive months? Has the teacher previously served in the military as an enlisted man, and, if so, for how long? Has the teacher previously served in the military as an officer, and, if so, for how long?
8. Level of Teaching: Is the teacher teaching at the junior high school level (grades 7, 8, 9) or at the senior high school level (grades 10, 11, 12 or 9, 10, 11, 12)?
9. Sharing of Responsibility: During what fraction of the school day does the teacher share responsibility with another teacher for a classroom teaching situation?
10. Coaching: Is the teacher an athletic coach for the school?
11. Curriculum Activity: Has the teacher been working on a curriculum project committee during the school year, and if so, about how many hours has he spent on the project during the year?

12. School Type: Is the teacher teaching in a "traditional" school or in a "non-traditional" school (defined as a school the operation of which is based on team teaching, individualized instruction or flexible scheduling), as viewed by the principal? (Note: No principal in the study described his school as being non-traditional.)
13. Per Pupil Expenditure: How much money does the school district spend per student per year?
14. Teacher Change of Position: Will the teacher be teaching in the same school during the 1971-1972 school year?
15. Grading Schedule: What fraction of the grades assigned by the beginning teacher at the first semester were below a "C"?

B. Social Exposure:

1. In-Service Courses: How many (if any) college or in-service courses has the teacher taken during the year?
2. Professional Associations: How many (if any) professional associations does the teacher belong to? (The National Education Association, the Washington Education Association, and the local education association are to be counted as a single association.)
3. Youth Leadership: Did the teacher lead or help to lead an organized community youth activity, such as the Boy Scouts, a church Sunday school, etc., during the school year?

4. Non-Teacher Social Contact: How many hours during a specific seven day period did the beginning teacher spend in social contact with non-teacher, non-family friends?

C. Faculty exposure:

1. School Size: What is the number of teachers in the school?
2. Department Meetings: How many department meetings in the departments to which the teacher belongs have been held during the year, as counted by the teacher?
3. Teachers with Common Interest: How many other teachers teach each of the same subjects (e.g., Algebra 1) the beginning teacher is teaching?
4. Chaperone Duties: How many extra-class activities (taking place outside the regular school day) has the teacher chaperoned during the school year?
5. Classroom Observations by Teacher: How many times during the school year has the teacher observed other teachers in classroom teaching situations, for ten minutes or more at a time?
6. Teacher Social Contact: How many hours during a specific seven day period did the beginning teachers spend in social contact with other teachers?

D. Administrative Characteristics:

1. Principal's Style: Does the teacher perceive the principal as using predominantly a laissez-faire, a participative, or an autocratic decision making style? (The question

posed to the teacher reads as follows: Which of the following statements best characterizes your view of your principal?

a. He generally lets the faculty and individual teachers make their own decisions on practically every question.

b. He generally talks questions over with the faculty, and teachers share in making decisions affecting them.

c. He generally determines the answers to practically every question by himself and then informs the faculty or the teacher of his decisions.)

2. Principal Observations: How many observations of ten minutes duration or longer has the principal made in the teacher's classes during the year?

3. Supervisor Observations: How many observations of ten minutes duration or longer (as counted by the teacher) has any supervisor other than the principal made in the teacher's classes during the year?

Limitations of the Data

Not all the data that was originally desired proved to be available. Principals were unable to specify the number of assemblies conducted in their schools during the year because the term "assemblies" was interpreted differently by each principal. In the absence of a commonly understood meaning of the term, any pattern present in the data collected could be only accidental. Also, the original intent had been to obtain MTAI scores from a randomly-selected half of the

beginning teachers immediately prior to the end-of-the-semester grading period and to obtain scores from the other half of the sample immediately after that grading period. However, mechanical problems of administering the MTAI during the hectic end-of-semester period prevented the achievement of that goal.

Method of Data Analysis

A Pearson product-moment correlation coefficient was computed for all the hypotheses except numbers 1, 4, 5, 12 and 33, for which Student's t statistic was computed. Each statistic was tested for significance using .05 as the critical level of significance. Analyses of curvilinear relations which were originally considered were not performed after it became apparent that the data distributions were too restricted to make such analyses meaningful.

The responses of the beginning teachers to the third administration of the MTAI and of the experienced teachers to their administration of the MTAI were subjected to a factor analysis to determine if the instrument can be considered as a measure of a small group of factors rather than as a mere sum of 150 different items. Three factors that are aspects of the authoritarian-permissive dimension concept were identified. Each hypothesis was then tested again in a comparison of the independent variable with each of those three factors.

Summary

The total population of beginning teachers in the Metropolitan Seattle school districts participating in the study in 1970-71 numbered 177. Permission to contact 86 of the 177 was granted by school

district authorities. Complete data or practically complete data were obtained from 68 beginning teachers, who were 79 per cent of the teachers contacted and 38 per cent of the total population.

Twenty-nine principals representing 88 per cent of the actively participating principals also provided practically complete sets of data, as did 146 experienced teachers who were 69 per cent of the experienced teachers contacted.

The Minnesota Teacher Attitude Inventory was administered four times throughout the year to the beginning teachers and once to the experienced teachers and principals. Also, the beginning teachers provided information on three questionnaires distributed at intervals during the year, and principals provided additional information concerning the school settings.

The data were analyzed by computing product-moment correlation coefficients and Student t statistics for the hypotheses and testing them for significance using .05 as the criterion level of significance. A factor analysis was performed on the responses of the beginning teachers to the third application of the MTAI and the responses of the experienced teachers to their application of the MTAI. Three factors related to the authoritarian-permissive dimension concept were identified by the factor analysis. Each hypothesis was then tested with scores on each of the three MTAI factors as the dependent variable.

CHAPTER IV

ANALYSIS OF THE DATA

The data analysis will be considered in three parts: (a) the hypotheses tested against MTAI scores; (b) the factor analysis of the MTAI; (c) the hypotheses tested against MTAI factor scores.

The Hypotheses Tested Against MTAI Scores

Thirty-five hypotheses were presented in Chapter I. They are presented again in Table IV in this chapter for convenient reference. Most of these hypotheses are treated as Pearson product-moment correlations; the exceptions are hypotheses 1, 4, 5, 12 and 32, which are tested with Student's t test. The correlations are tested against the null hypothesis, that the population value of the correlation is zero. The critical level for all tests is taken as 0.05. If any statistic tests at a higher level of significance, e.g., at 0.01, that fact is noted.

Hypotheses Confirmed

Tables V and VI show the results of the tests. For only four hypotheses can the null hypothesis be rejected. These hypotheses are numbers 1, 4, 5, and 6. That is, beginning teachers are more authoritarian (as measured by the MTAI) at the end of their first year of teaching than at the beginning of that year; they predict lower average MTAI scores for their faculties than actually occur; they predict lower MTAI scores for their principals than actually occur; and their beginning-of-the-year MTAI scores are positively related to their end-of-the-year MTAI scores. None of the other hypotheses was substantiated

TABLE IV

HYPOTHESES

1. Beginning teachers are more authoritarian (as evidenced by lower MTAI scores) at the end of their first year of teaching than at the beginning of that year.

2. Beginning teachers become more authoritarian as the experienced members of their faculty are more authoritarian.

3. Beginning teachers become more authoritarian as their principals are more authoritarian.

4. Beginning teachers predict lower average MTAI scores for their faculties than actually occur.

5. Beginning teachers predict lower MTAI scores for their principals than actually occur.

6. Beginning teachers' beginning-of-the-year MTAI scores are positively related to their end-of-the-year MTAI scores.

7. Beginning teachers have less change toward authoritarianism as their college grade point averages are higher.

8. Beginning teachers have less change toward authoritarianism as their subject matter backgrounds are more extensive.

9. The career vocational experience of beginning teachers is negatively related to change of attitude scores.

10. Beginning teachers from teachers'colleges have less change toward authoritarianism than beginning teachers from liberal arts colleges.

11. Beginning teachers from teachers' colleges have less change toward authoritarianism than beginning teachers from universities.

12. Beginning teachers from teachers' colleges are more authoritarian at the beginning of the year than beginning teachers from liberal arts colleges and universities.

13. The age of beginning teachers is negatively related to the size of the change of attitude of the teachers during the year.

14. Beginning teachers have less change toward authoritarianism as they spend more time with non-family, non-teacher friends.

15. Beginning teachers who share classroom responsibilities with another teacher have less change toward authoritarianism than do other teachers.

TABLE IV continued

16. Special curriculum project activity of beginning teachers is negatively related to change of attitude scores.

17. Activity of beginning teachers in college or in in-service training courses during the school year is negatively related to change of attitude scores.

18. As beginning teachers belong to more professional associations they have less change toward authoritarianism.

19. The larger the number of teachers in the school, the more beginning teachers change toward authoritarianism.

20. The larger the number of department meetings held during the year, the less beginning teachers change toward authoritarianism.

21. The more teachers in the school who teach the same subjects as the beginning teacher, the less the beginning teacher changes toward authoritarianism.

22. The greater the number of chaperone type duties performed during the year by beginning teachers, the more they change toward authoritarianism.

23. The more times beginning teachers observe other teachers in classroom teaching situations, the less beginning teachers change toward authoritarianism.

24. The amount of coaching activity of beginning teachers is negatively related to change of attitude scores.

25. Beginning teachers become less authoritarian as they spend more time with other teachers.

26. Beginning teachers with principals who are perceived as using the autocratic style of decision making change more toward authoritarianism than do beginning teachers with principals who are perceived as using a laissez-faire style.

27. Beginning teachers with principals who are perceived as using the autocratic style of decision making change more toward authoritarianism than do beginning teachers with principals who are perceived as using a participative style of decision making.

28. Beginning teachers with principals who are perceived as using the laissez-faire style of decision making change more toward authoritarianism than do beginning teachers with principals who are perceived as using a participative style of decision making.

TABLE IV continued

29. The greater the number of principal's observations of a beginning teacher, the more the beginning teacher changes toward authoritarianism.

30. The greater the number of supervisory (non-principal) observations of a beginning teacher, the more the beginning teacher changes toward authoritarianism.

31. Changes of beginning teacher permissive-authoritarian attitudes are not related to sex.

32. The marital status of beginning teachers is not related to changes of beginning teacher permissive-authoritarian attitudes.

33. Changes of permissive-authoritarian attitudes are not related to whether a teacher teaches at the junior high school level or at the senior high school level.

34. The amount of money spent per pupil by each district is not related to changes of beginning teacher permissive-authoritarian attitudes.

35. The greater the proportion of "D" and "failure" grades to all grades given at the end of the first semester, the more the beginning teacher changes toward authoritarianism.

TABLE V

RESULTS OF TESTS
OF THE NUMBERED HYPOTHESES
TESTED AGAINST MTAI SCORES

HYPOTHESIS	CORRELATION COEFFICIENT	NUMBER OF CASES	LEVEL OF SIGNIFICANCE(2)
1	(1)	62	.025
2	.14	62	ns
3	.12	54	ns
4	(1)	30	.001
5	(1)	26	.001
6	.75	62	.005
7	-.14	60	ns
8	-.08	57	ns
9	.01	62	ns
10	-.14	21	ns
11	.09	56	ns
12	(1)	61	ns
13	-.18	61	ns
14	-.06	55	ns
15	.03	62	ns
16	.05	62	ns
17	.18	62	ns
18	.02	62	ns
19	-.11	62	ns
20	-.07	59	ns
21	-.07	59	ns
22	.02	60	ns
23	.06	59	ns
24	.01	62	ns
25	.04	57	ns
26	.01	31	ns
27	.25	42	ns
28	-.23	51	ns
29	-.23	61	ns
30	.05	61	ns
31	.01	62	ns
32	(1)	62	ns
33	-.02	62	ns
34	-.01	62	ns
35	.08	55	ns

(1) These hypotheses are tested with Student's t. Their statistics are reported in Table VI.

(2) Hypotheses one through 30: one-tailed tests. Hypotheses 31 through 35: two-tailed tests.

(3) "ns" means not significant using .05 as the critical significance level.

TABLE VI

RESULTS OF TESTS OF HYPOTHESES USING STUDENT'S t TESTED AGAINST MTAI SCORES

HYPOTHESIS	Mean	Standard Deviation	t	Degrees of Freedom	Level of Significance
1.			2.30*	61	.025
Beginning-of-year MTAI	45.76	32.08			
End-of-year MTAI	38.71	35.06			
4.			6.23	58	.001
Teachers' Estimates of Faculties' MTAI Scores	-36.50	52.23			
Actual Faculties' MTAI Scores	28.28	23.12			
5.			4.99	50	.001
Teachers' Estimates of Principals' MTAI Scores	- 5.92	48.32			
Actual Principals' MTAI Scores	49.50	29.51			
12.			1.2	59	Not significant at .05
Teachers College Graduates' MTAI Scores	46.2	36.1			
University and Liberal Arts Graduates' MTAI Scores	57.8	25.7			

TABLE VI
(continued)

HYPOTHESIS	Mean	Standard Deviation	t	Degrees of Freedom	Level of Significance
32.			(a,b) 1.14	36	None of the three is significant at .05
			(a,c) 0.50	57	
			(b,c) 0.95	25	
a)Married Beginning Teachers' Change of MTAI Scores	-8.86	29.0			
b)Divorced Beginning Teachers' Change of MTAI Scores	5.33	20.0			
c)Single Beginning Teachers' Change of MTAI Scores	-5.96	15.8			

* t is computed using formula for correlated samples since r = .75, significant at .005.

by correlation with scores on the complete inventory.

Table VI shows the details of the t tests used on hypotheses 1, 4, 5, 12, and 33. The figures for hypothesis 1 show that the mean of beginning teacher MTAI scores declined by 7.05 units, from 45.76 to 38.71. That decline is significant at the .025 level with a one-tailed test.

For hypothesis 4, the difference between beginning teachers' estimates of faculty attitudes and the mean scores of the faculty samples is 64.78, a difference that is significant at the .001 level, with a one-tailed test. To compute the faculty mean and standard deviation, each faculty mean score was weighted by the number of participating beginning teachers in that school. The difference of the means thus represents the mean of the differences between beginning teachers' estimates and their faculties' actual scores.

Similarly for hypothesis 5, beginning teachers' estimates of their principals' scores are substantially different from the scores the principals themselves report. (As in hypothesis 4, each principal score is weighted by the number of beginning teachers in the school.) The t value for the differences between the mean of the estimates and the mean of the principals' actual score is significant at the .001 level, the mean of beginning teachers' estimates of principals' MTAI scores being -5.92 and the mean of the principals' actual scores being 49.50, the difference between the two means being 55.42.

The fourth hypothesis for which the null hypothesis can be rejected is that beginning teacher responses to the MTAI are generally consistent throughout the year. The correlation between beginning teachers'

beginning-of-the-year and end-of-the-year MTAI scores is .75, which is significant at the .005 level.

For each of the four hypotheses described above, the null hypothesis can be rejected at the .05 level, at least. For no other hypothesis can the null hypothesis be rejected. Table V and Table VI provide the detailed statistics on the hypotheses.

Factor Analysis of the MTAI

Methods

Table VII shows the factors that were identified through a factor analysis of experienced teachers' MTAI responses and beginning teachers' end-of-year responses. 242 teachers' responses were used in the factorization of the 150 item inventory. The Bio-Medical package factor analysis program (BMDX72) of the University of California at Los Angeles Health Sciences Computing Facility was used. Varimax orthogonal rotation was performed on the factor loading matrix.

Scoring Systems. An important aspect of the factor analysis must be emphasized here. The scoring system developed by the MTAI authors was not used in the factor analysis. The authors' scoring system had been used to obtain the MTAI scores reported earlier in the chapter, but that system is not entirely suitable for a factor analysis of the MTAI's 150 items.

TABLE VII

FACTORS IDENTIFIED IN THE
MINNESOTA TEACHER ATTITUDE INVENTORY

Factor 1. Teacher's view of student role: Independent--Subservient

MTAI items numbered 4, 12, 19, 21, 23, 24, 35, 36, 38, 46, 48, 49, 50, 51, 54, 55, 57, 61, 62, 63, 65, 70, 76, 79, 80, 92, 94, 95, 100, 102, 104, 108, 109, 110, 113, 114, 116, 126.

Factor 2. Teacher's view of student-teacher relations: Accepting -- Formalized

MTAI items numbered 7, 9, 20, 25, 30, 34, 37, 39, 40, 41, 42, 58, 67, 73, 74, 75, 83, 89, 99, 119, 120, 121, 123, 124, 128, 129, 130, 131, 132, 133, 134, 135, 137, 141, 144, 145, 149.

Factor 3. Teacher's view of discipline: Unimportant--Important

MTAI items numbered 3, 11, 15, 26, 27, 53, 64, 71, 78, 87, 91, 93, 140, 142, 147.

Factor 4. Teacher's view of student attitudes: Considerate--Inconsiderate

MTAI items numbered 6, 68, 82, 90, 101, 146.

Factor 5. Teacher's view of student-teacher relations: Unpleasant-- Pleasant

MTAI items numbered 5, 14, 31, 32, 98, 107.

Factor 6. Teacher's view of student misbehavior: Unimportant--Important

MTAI items numbered 13, 18, 28, 29, 47, 72, 84, 88, 105, 115, 118, 122, 143, 148.

TABLE VII continued

Factor 7. Teacher's view on use of peer group pressure: Undesirable--Desirable

MTAI items numbered 8, 43, 44, 45, 52, 56, 69, 81, 103, 112, 136, 138, 139.

Factor 8. Teacher's view on teacher responsibility: Inclusive--Exclusive

MTAI items numbered 17, 22, 97, 106.

Factor 9. (The items have no obvious features in common.)

MTAI items numbered 10, 96.

Factor 10. Teacher's view on teacher responsibility for student discipline: Responsible--Not responsible

MTAI items numbered 33, 60, 77, 111, 125, 127.

Items not included in any of the ten factors above:

MTAI items numbered 1, 2, 16, 59, 66, 85, 117, 150.

When the MTAI was originally developed, the authors treated each possible response to each of the 150 items as an independent element. Thus, they selected out those item responses that were chosen by "good" teachers and assigned them a scoring weight of +1, and they selected out the item responses chosen by "bad" teachers and assigned them a scoring weight of -1. Item responses that did not discriminate between the two groups of teachers were assigned zero scoring weight. The result is a scoring key that is difficult to interpret. For example, according to the authors' empirical system item number one would be scored as follows:

Strongly agree	=	+1
Agree	=	-1
Undecided	=	0
Disagree	=	-1
Strongly disagree	=	0

Albert Yee and Thomas Kriewall (1969) discussed the MTAI scoring system at some length. They suggested several alternatives that are simpler to understand, alternatives that all assumed an interdependence among the possible responses to each item. One of the alternatives is simply the Likert coded-response scale in which for item one, "Strongly Agree", is scored +2, "Agree" is scored +1, and so on to "Strongly Disagree" which is scored -2. Yee and Kriewall labeled this the "Pentachotomous-logical key (P-L)." They found that for their sample of 212 teachers the odd-even reliability of the MTAI was the same ($r = .90$) whether scored using the original empirical key or the P-L key. They found, too, that validity was equivalent for the two scoring

procedures, where the external validity measure was principals' ratings of 205 of the teachers. For both scoring procedures the MTAI scores of the teachers correlated 0.25 with the principals' ratings. The correlation coefficient was significant at the 0.01 level.

The P-L scoring procedure has been used for the factor analysis in the present research, since: (a) the purpose of factor analysis is to discover psychologically reasonable factors; (b) factor interpretation is simplified by use of the P-L procedure; and (c) the Yee and Kriewall research implies that both the empirical scoring key and the P-L procedure yield equivalent reliability and validity.

Element Criteria. For an item to qualify as an element in a specific factor, two criteria had to be met. First, the item had to be loaded nigher on that factor than on any other factor. Second, the factor loading score had to be 0.30 or larger.

Results

Ten factors were identified, using these two criteria, 142 of the 150 items of the MTAI are qualified to be factor elements. Table VIII lists the items identified in each of the ten factors, along with the factor loadings.

The factor loadings of many items on the factors is not high. Only four out of the 142 items have factor loadings of 0.70 or more, in which case at least one-half of the item variance would be explained by the factor. Forty-eight of the 142 items, or 34 per cent, have factor loadings between 0.30 and 0.40, in which only ten to fifteen per cent

TABLE VIII

FACTORS C. THE MINNESOTA
TEACHER ATTITUDE INVENTORY

Factor 1		Factor 2		Factor 3	
Item	Factor Loading	Item	Factor Loading	Item	Factor Loading
4	-.32	7	-.48	3	.41
12	-.49	9	-.40	11	.37
19	-.64	20	-.41	15	.45
21	-.41	25	.49	26	.47
23	-.55	30	-.54	27	-.37
24	-.61	34	-.43	53	.34
35	-.76	37	.35	64	.51
36	-.43	39	-.43	71	.58
38	.39	40	.48	78	.39
46	-.49	41	-.30	87	.46
48	-.43	42	-.32	91	.48
49	-.47	58	-.44	93	.56
50	-.60	67	-.33	140	.54
51	-.42	73	-.31	142	.51
54	-.49	74	-.43	147	.43
55	-.35	75	-.36		
57	-.55	83	-.38		
61	-.42	89	.40		
62	.36	99	-.59		
63	-.56	119	-.57		
65	-.52	120	-.49		
70	-.33	121	-.39		
76	-.76	123	-.32		
79	-.43	124	-.42		
80	-.72	128	-.46		
86	-.35	129	-.52		
92	-.34	130	.51		
94	-.50	131	-.47		
95	-.33	132	-.56		
100	-.36	133	.54		
102	-.31	134	-.38		
104	-.35	135	-.57		
108	-.40	137	-.37		
109	-.55	141	-.39		
110	-.67	144	.45		
113	-.46	145	.39		
114	-.45	149	-.50		
116	-.63				
126	-.80				

TABLE VIII continued

Factor 4		Factor 5		Factor 6		Factor 7	
Item	Factor Loading	Item	Factor Loading	Item	Factor Loading	Item	Factor Loading
6	-.33	5	-.44	13	-.41	8	-.34
68	.38	14	.39	18	-.46	43	-.44
82	-.40	31	.43	28	-.35	44	-.31
90	.62	32	-.36	29	-.37	45	.38
101	.46	98	.57	47	-.43	52	-.49
146	.40	107	.43	72	-.43	56	-.45
				84	-.43	69	-.48
				88	-.49	81	-.42
				105	-.43	103	-.42
				115	-.51	112	-.39
				118	-.50	136	.45
				122	-.31	138	-.58
				143	-.37	139	-.46
				148	-.36		

TABLE VIII continued

Factor 8		Factor 9		Factor 10	
Item	Factor Loading	Item	Factor Loading	Item	Factor Loading
17	-.48	10	-.35	33	-.48
22	-.53	96	.36	60	-.31
97	.50			77	-.30
106	-.44			111	-.41
				125	-.31
				127	.44

of the item's variance is explained by the factor. Table IX (a and b) lists the number of items in each factor at each factor loading level.

The set of factors presented in Table VII has some points of similarity to the set of factors discovered by Horn and Morrison, as is shown in Table X. Their Factor I includes seventeen items every one of which is included in the first factor of this research. Their Factor II includes 22 items, of which twelve, or 55 per cent, are included in the second factor of this research. Their Factor III, with seven items, does not correspond to any of the present factors, since no more than two of the seven items occur together in any of the factors of this research. The seven items of their Factor IV, also, are spread through several of the present factors. Finally, their Factor V includes only four items, all of which are contained in the present factor 3. Thus, three of Horn and Morrison's factors have been confirmed, and two of their factors were not found to be factors in the present research.

The factors identified here also share the major features of the five factors discovered by Albert Yee and Benjamin Fruchter, as shown in Table XI. The present factor 1 contains seventeen of the twenty items, or 85 per cent, in Yee's first factor. The present factor 2 contains fourteen of the fifteen items, or 93 per cent, in Yee's second factor. The present factor 6 contains six of the twelve items, or 50 per cent, in Yee's third factor. The present factor 3 contains five of the seven items, or 71 per cent, in Yee's fourth factor. The present factor 4 contains three of the six items, or 50 per cent, in Yee's fifth factor.

TABLE IX(a)

NUMBER OF ITEMS IN EACH FACTOR
AT EACH FACTOR LOADING LEVEL

FACTOR	1	2	3	4	5	6	7	8	9	10
Factor Loading Level										
.30-.39	12	14	4	3	2	5	3	0	2	3
.40-.49	13	14	6	2	3	8	9	3		3
.50-.59	5	9	5	0	1	1	1	1		
.60-.69	5			1						
.70-.79	3									
.80-.89	1									
Total	39	37	15	6	6	14	13	4	2	6

TABLE IX(b)

PERCENTAGE PROPORTION OF ITEMS
IN EACH FACTOR
AT EACH FACTOR LOADING LEVEL

Factor	1	2	3	4	5	6	7	8	9	10
Factor Loading Level										
.30-.39	31%	38%	27%	50%	33%	36%	23%	0%	100%	50%
.40-.49	33%	38%	40%	33%	50%	57%	69%	75%		50%
.50-.59	13%	24%	33%	0%	17%	7%	8%	25%		
.60-.69	13%			17%						
.70-.79	8%									
.80-.89	3%									

TABLE X

FRACTIONS OF ITEMS
IN HORN AND MORRISON'S FACTORS
FOUND IN EACH OF THE PRESENT FACTORS

		PRESENT FACTORS										
		1	2	3	4	5	6	7	8	9	10	No Factor
Horn and Morrison's Factors	I	1.00	-	-	-	-	-	-	-	-	-	-
	II	.18	.55	-	.05	-	.05	-	.09	-	.05	-
	III	.29	.14	-	-	-	.29	.14	-	-	-	.14
	IV	-	.29	-	-	.29	.14	.14	-	-	.14	-
	V	-	-	1.00	-	-	-	-	-	-	-	-

TABLE XI

FRACTIONS OF ITEMS
IN YEE AND FRUCHTER'S FACTORS
FOUND IN EACH OF THE PRESENT FACTORS

		PRESENT FACTORS										
		1	2	3	4	5	6	7	8	9	10	No Factor
	I	.85	.10	-	-	-	-	.05	-	-	-	-
Yee	II	-	.93	-	-	-	-	.07	-	-	-	-
and	III	.08	.08	.08	-	-	.50	.17	-	-	-	.08
Fruchter's	IV	-	-	.71	-	-	-	-	-	-	.14	.14
Factors	V	.17	-	-	.50	.17	-	-	-	-	-	.17

Summary of the Factor Analysis

The 150 MTAI responses of each of 242 secondary school teachers were scored using Likert type "pentachotomous-logical" item scales, and the data subjected to a factor analysis with Varimax orthogonal rotation. Selection of items for factors was guided by two criteria: (a) the factor loading of the item on the factor must be 0.30 or larger; and, (b) the item is included in the factor for which its factor is the greatest. Ten factors were identified; they involved 142 of the 150 items making up the MTAI. While the lowest factor loading was 0.30, the median factor loading is in the 0.40 to 0.49 range. The complete list of factors, items and factor loadings is presented in Table VIII.

The general outlines of at least five factors of the MTAI seem to be well established by the extent to which the present data analysis confirms the results of two earlier studies. However, the precise form of the factors is not well defined, as items shift in and out of the factors from one study to the next and depending on the criteria determining the factors. In this investigation ten factors involving 142 items are isolated, while Horn and Morrison's five factors involved only 57 items and Yee and Fruchter's five factors involved only 60 items. Therefore, only eight items are left outside the factor scheme in this study, while the other studies leave 93 items and 90 items out of their factors. The present factors form a more complete analysis of the whole MTAI than do previous sets of factors. The previously published factors are more tightly structured than those presented here.

Testing of the Hypotheses Using MTAI Factors

Dimensions Measured by the Factors. The first three factors discovered in the factor analysis seem to relate to authoritarian attitudes. Horn and Morrison describe these as "Traditionalistic vs. Modern Beliefs about Child Control", "Unfavorable vs. Favorable Opinions about Children", and "Laissez-Faire vs. Controlling Attitude toward Children". Yee and Fruchter chose to label the three factors as "Children's Irresponsible Tendencies and Lack of Self-Discipline", "Conflict between Teachers' and Pupils' Interests", and "Pupil Independence in Learning". These two sets of names differ in tone and, to some degree, in content, from each other. Another set of names is offered here. (The creation of such names is highly subjective, and each person must satisfy himself as to the suitability of the names.) The first factor is to be labeled "Teacher's View of Student Role: Independent-Subservient". The second factor is to be labeled "Teacher's View of Teacher-Student Relations: Accepting-Formalized", and the third factor is to be labeled "Teacher's View of Discipline: Unimportant-Important". These three factors all relate to a general authoritarian dimension. They dominate the tone of the MTAI, perhaps thereby giving the MTAI its reputation as an instrument generally measuring permissive-authoritarian attitudes.

Test Methods. The three factors described above were substituted into the original list of hypotheses in place of each reference to a total MTAI score. Since the remaining seven factors do not seem to be directly related to authoritarian attitudes, they do not relate to the theory proposed

earlier. Therefore, those seven factors were not tested against any of the hypotheses. The hypotheses were then tested in the same way the original hypotheses had been tested. The scores of each teacher on each of the three factors was computed by assigning each MTAI item in a factor a weight of +1 or -1 as the factor loading of the item on the appropriate factor was positive or negative, and assigning each response a value of 5, 4, 3, 2 or 1 as the response was "strongly agree", "agree", and so on to "strongly disagree" -- in accordance with the pentachotomous-logical scales used in preparing the data for the factor analysis. The factor score is then simply the sum of the products of item weights and response values.

Test Results. The results of testing the hypotheses against MTAI factors are similar to the results of the original tests of the hypotheses, as can be seen in Tables V and VI and Tables XII and XIII.

Hypothesis one, that there is no difference between beginning-of-year and end-of-year scores of beginning teachers cannot be rejected for factors one, two or three.

Hypothesis four, that beginning teachers do not misjudge the attitudes of the experienced faculty members, and hypothesis five, that beginning teachers do not misjudge the attitudes of their principals, can both be rejected for all three factors at the .01 level or better.

Hypothesis six, that beginning teachers scores at the beginning of the year have no relation to their scores at the end of the year, can be rejected at the .01 level for all three factors. A high correlation exists between the scores teachers bring to the profession and their scores after a year of teaching, the correlation being about .60 for all three factors.

TABLE XII

HYPOTHESES TESTED AGAINST
THREE MTAI FACTORS

HYPOTHESIS	N	Factor 1 r	Factor 1 L.S.(1)	Factor 2 r	Factor 2 L.S.(1)	Factor 3 r	Factor 3 L.S.(1)
1	62	(2)	n.s.	(2)	n.s.	(2)	n.s.
2	61	-.15	n.s.	-.21	.05	-.17	n.s.
3	54	.00	n.s.	-.21	n.s.	.26	n.s.
4	32	(2)	.001	(2)	.001	(2)	.01
5	27	(2)	.001	(2)	.001	(2)	.01
6	62	.57	.01	.60	.01	.57	.01
7	60	-.21	n.s.	.06	n.s.	.11	n.s.
8	57	-.04	n.s.	-.22	n.s.	.00	n.s.
9	61	.01	n.s.	-.02	n.s.	-.04	n.s.
10	21	.12	n.s.	.12	n.s.	-.40	n.s.
11	56	.14	n.s.	.06	n.s.	-.08	n.s.
12	61	(2)	.05	(2)	n.s.	(2)	n.s.
13	60	-.25	.05	-.14	n.s.	.08	n.s.
14	55	.12	n.s.	.07	n.s.	.05	n.s.
15	61	.05	n.s.	-.32	.01	-.16	n.s.
16	61	.19	n.s.	-.02	n.s.	-.21	.05
17	61	-.03	n.s.	-.22	.05	-.03	n.s.
18	61	.21	n.s.	-.17	n.s.	-.11	n.s.
19	61	-.19	n.s.	-.12	n.s.	-.20	n.s.
20	59	-.25	.05	-.10	n.s.	.23	n.s.
21	55	.14	n.s.	-.03	n.s.	.08	n.s.
22	59	-.08	n.s.	.12	n.s.	.15	n.s.
23	58	.24	n.s.	.08	n.s.	-.18	n.s.
24	61	.08	n.s.	.16	n.s.	.14	n.s.
25	57	.10	n.s.	.09	n.s.	-.16	n.s.
26	31	-.10	n.s.	-.09	n.s.	-.37	.05(3)
27	41	.09	n.s.	.25	n.s.	-.36	.02(3)
28	51	-.20	n.s.	.36	.01(3)	.05	n.s.
29	61	.02	n.s.	.09	n.s.	.28	.05
30	61	-.13	n.s.	.06	n.s.	.17	n.s.
31	61	.15	n.s.	.22	n.s.	.12	n.s.
32	61	(2)		(2)		(2)	
33	61	-.29(4)	.05	.07	n.s.	-.27(4)	.05
34	62	-.02	n.s.	-.16	n.s.	.11	n.s.
35	55	.06	n.s.	.10	n.s.	-.04	n.s.

(1) The critical level of significance for hypotheses 1 through 30 is 0.05 (one-tailed). The critical level of significance for hypotheses 31 through 35 is 0.05 (two-tailed). n.s. means "not significant".

TABLE XII continued

(2) These hypotheses were tested using Student's t rather than testing the correlation coefficients for significance. Their analysis is presented in Table XIII.

(3) The correlation is opposite in sign to that predicted by the hypothesis. The indicated level of significance is for a two-tailed test.

(4) The negative correlation coefficient indicates that the junior high school teachers changed more toward authoritarian attitudes than did the senior high school teachers.

TABLE XIII

RESULTS OF TESTS OF THE HYPOTHESES
USING STUDENT'S t TESTED AGAINST MTAI FACTORS

HYPOTHESIS	1: First MTAI	1: Third MTAI	4: Teachers' Estimates of Faculties' MTAI Scores	4: Faculties' Actual MTAI Scores	5: Teachers' Estimates of Principals' MTAI Scores	5: Principals' Actual MTAI Scores
Number of Cases	62		30		26	
FACTOR 1						
Mean	-82.71	-83.87	-90.22	-83.83	-87.15	-78.11
S.D.	6.43	6.50	7.67	3.45	5.87	7.94
t	1.51		4.29		4.76	
d.f.	61		58		50	
Level of Significance	n.s.		.001		.001	
FACTOR 2						
Mean	-51.39	-51.81	-56.13	-52.14	-54.63	-49.59
S.D.	5.91	5.19	4.52	2.23	5.19	4.59
t	0.68		4.48		3.88	
d.f.	61		58		50	
Level of Significance	n.s.		.001		.001	
FACTOR 3						
Mean	31.85	31.58	34.53	32.50	33.15	30.85
S.D.	3.23	2.99	3.15	1.82	3.65	2.66
t	0.74		3.17		2.64	
d.f.	61		58		50	
Level of Significance	n.s.		.01		.01	

TABLE XIII continued

RESULTS OF TESTS OF THE HYPOTHESES
USING STUDENT'S t TESTED AGAINST MTAI FACTORS

HYPOTHESIS	12:	Teachers College Graduates' MTAI Scores	University and Liberal Arts College Graduates' MTAI Scores	32: a) Married Beginning Teachers' Change of MTAI Scores	b) Divorced Beginning Teachers' Change of MTAI Scores	c) Single Beginning Teachers' Change of MTAI Scores
Number of Cases		16	45	35	3	24
FACTOR 1:						
Mean		-83.81	-80.31	-1.74	4.00	-1.00
S.D.		6.37	4.79	6.43	6.25	5.38
t	2.00			t(a,b):1.52;	t(a,c):1.33;	t(b,c):0.47
d.f.	59			none is significant		
Level of Significance	.025					
FACTOR 2:						
Mean		-51.50	-51.75	0.88	-2.67	-1.79
S.D.		7.97	3.28	5.44	4.51	4.01
t	0.12					
d.f.	59			t(a,b):1.28;	t(a,c):2.15;	t(b,c):0.32
Level of Significance	n.s.			d.f.(a,c):57 married vs. single (a vs. c) sig. at .05		
FACTOR 3:						
Mean		32.06	31.38	-0.68	-2.00	0.33
S.D.		3.87	2.96	3.14	3.61	2.28
t	0.64			t(a,b):0.61;	t(a,c):1.4.	t(b,c):1.09
d.f.	59					
Level of Significance	n.s.			none is significant		

For no hypothesis other than four, five and six can the null hypothesis be rejected for all three factors.

Factor 1. For factor one alone the null hypothesis can be rejected at the .05 level for hypotheses 12, 13, 20 and 33. That is, beginning teachers from teachers' colleges are more authoritarian at the beginning of the year than beginning teachers from liberal arts colleges and universities; the age of beginning teachers is negatively related to the size of the change of attitude of the teachers during the year; the larger the number of department meetings held during the year, the less beginning teachers change toward authoritarianism; and beginning junior high school teachers do change more toward an authoritarian attitude than senior high school teachers do.

Factor 2. For factor two alone there are four hypotheses, besides four, five and six, for which significant statistics were obtained. They are 15, 17, 28 and 32. Thus by this measure, beginning teachers who share classroom responsibilities with another teacher have less change toward authoritarianism than do other teachers; and, activity of beginning teachers in college or in in-service training courses during the school year is negatively related to change of attitude scores.

However, for one hypothesis there was a statistically significant relationship but in the direction opposite to that proposed in the hypothesis. The statistic indicates that beginning teachers under participative style principals change more toward an authoritarian attitude than beginning teachers under laissez-faire style principals.

Also, one hypothesis that was not expected to show significant results did have a significant statistic. Married beginning teachers are more authoritarian than single teachers, using factor two as the authoritarian criterion.

Factor 3. No more positive results were found for the third factor than for the second factor. Again excepting hypotheses four, five and six, only five hypotheses yielded significant statistics, and of these only two of the results had been predicted by the theory. Two of the results were opposite in direction to that predicted, and one was from the set of hypotheses from which no significant result was expected. Thus, the hypothesis that special curriculum project activity of beginning teachers is negatively related to change of attitude scores is supported, and the hypothesis that the greater the number of principal's observations of a beginning teacher, the more the beginning teacher changes toward authoritarianism is also supported.

However, the hypotheses that beginning teachers with laissez-faire style or participative style principals change no more toward an authoritarian attitude than those with an autocratic style principal can be rejected. Contrary to prediction, teachers under laissez-faire and participative style principals changed more than teachers under autocratic style principals.

Also, the unpredicted result appeared that junior high school beginning teachers change more toward authoritarianism than do senior high school beginning teachers, using factor three as the criterion of authoritarianism.

Significance of the Series of Tests. The hypotheses that relate independent variables to changes of MTAI factor scores can be considered as a group. They include hypotheses two, three and seven through thirty, excluding those hypotheses which did not predict the specific directions in which the attitude changes were to occur. Thus the group contains 26 hypotheses, each of which was tested with three MTAI factors for a total of 78 tests. Significant statistics were obtained on eight of those tests. James Sakoda, Burton Cohen and Geoffrey Beall (1954) have calculated that the chance probability of obtaining at least eight statistics significant at the .05 level from 78 calculated statistics is less than .05. Therefore, it is improbable that all of the significant statistics occurred by chance alone, although several of them may have been mere chance events.

Additional Data Analysis

After the data presented earlier in this chapter had been examined, some additional calculations seemed appropriate. This analysis related the size of the change of MTAI scores to beginning teachers' perceptions of the faculties' and principals' attitudes and to the beginning teachers' original attitudes. The results appear in Table XIV.

TABLE XIV

PERCEIVED ATTITUDES CORRELATED WITH

MAGNITUDE OF CHANGES IN

BEGINNING TEACHERS' ATTITUDE SCORES

		Size of the Change in Beginning Teachers' Attitude Scores							
		Total MTAI Scores		Factor 1		Factor 2		Factor 3	
	N	r	L.S.*	r	L.S.	r	L.S.	r	L.S
Perceived Faculties' Attitudes	31	.16	n.s.	.08	n.s.	.28	n.s.	-.18	n.s
Perceived Principals' Attitudes	30	.18	n.s.	.50	.01	.38	.05	.44	.02
Beginning Teachers' Original Attitudes	62	-.24	n.s.	-.46	.01	-.56	.01	-.53	.01

*All level of significance figures are for two-tailed tests.

No significant correlations appeared between the beginning teachers' perceptions of faculty attitudes and the beginning of teachers' attitude changes. However, there was a significant relationship between the teachers' perceptions of their principals' attitudes and the size of their own changes of attitude. The more authoritarian the principal was believed to be, on a specific factor, the more the beginning teacher changes toward an authoritarian position on that factor. Also, on a factor-by-factor basis, the more permissive a beginning teacher was at the beginning of the year, the more he changed toward authoritarian attitudes during the year.

Summary of Chapter IV

Total-Score Tests

The hypotheses were tested using the total MTAI score wherever a measure of authoritarian attitude was indicated. The data depicted a significant increase in authoritarian attitude between the beginning of the year and the end of the year for beginning teachers. The change of attitude was not significantly related to any of the variables tested in the hypotheses.

Hypotheses four and five relate to the accuracy with which beginning teachers can estimate the attitudes of their faculties and of their principals. In both cases the beginning teachers' estimates were over fifty points too low, the differences being significant at the .001 level. Hypothesis six, which predicts that the beginning teachers beginning-of-the-year MTAI scores will be positively related to their end-of-the-year MTAI scores, was supported at the .005 level.

A multiple correlation against final MTAI scores for the beginning teachers had been planned. But only one predictor variable had a significant correlation with the level or the change of level of the MTAI, a multiple correlation could represent nothing other than a systematic selection of error terms.

Factor Analysis

A factor analysis was performed on the MTAI responses of experienced teachers and of the beginning teachers at the end of their first year of teaching. The factors were transformed by an orthogonal transformation.

Items were sorted into factors on the basis of a minimal factor loading of .30 and the factor for which the item's factor loading was a maximum. Ten factors involving 142 of the 150 items on the MTAI were identified. The first few factors generally coincided with factors identified in two earlier studies.

Tests of Hypotheses Against Specifically Authoritarian Factors

Three of the factors were taken to provide measures of authoritarianism. Scores for each participant on each factor for each application of the MTAI were determined using unit item weights and Likert type item scales. The scores were used to test each of the hypotheses against each of the three factors. For factor one significant statistics were obtained on hypotheses 4, 5, 6, 12, 13, 20 and 33. For factor two significant statistics were obtained on hypotheses 2, 4, 5, 6, 15, 17, 28 and 32. For factor three significant statistics were obtained on hypotheses 4, 5, 6, 16, 26, 27, 29 and 33. Only for hypotheses four, five and six, in which teachers estimated faculty and principal scores and the beginning-of-year MTAI scores were correlated with the end-of-year MTAI scores, did all three factors have significant statistics. Only for hypothesis 33, in which junior high school teachers apparently change more toward authoritarian attitudes than do senior high school teachers, did two of the three factors have significant statistics. For all other hypotheses, statistically significant results were limited to only one or to none of the three factors.

However, 26 of the hypotheses related independent variables to change of attitude scores, predicting changes of attitudes in particular directions. Eight of 78 statistics involving those hypotheses and the three

authoritarianism oriented factors were statistically significant. The probability that eight or more significant results would occur due to chance alone is only .05.

Additional Data Analysis

Also, additional analysis of the data indicates that beginning teachers' changes of attitudes on specific factors are significantly correlated at the .4 to .5 level with the beginning teachers' perceptions of their principals' attitudes and (inversely) with their own beginning of the year attitude scores.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The Research Problem

The purpose of this research was to obtain information that would be useful to administrators in predicting attitudes of beginning teachers. Authoritarianism in the school setting was taken to be an attitude dimension that would be considered important to administrators seeking to promote a desirable psychological environment in their schools through careful selection of the teachers to be on their faculties. Previous research had indicated that beginning teachers become more authoritarian during their initial teaching experiences. The present research investigated the extent of the change and degree to which it could be predicted.

A theory was proposed to explain the change of attitude experienced by beginning teachers. The theory was based on the concept of socialization according to which new members of a cultural group tend to accept the norms that they perceive to be dominant in the group. Since socialization is dependent upon perceived norms, the examples of peer behavior that can be observed by beginning teachers was considered in the theory. It was proposed that observed behavior is systematically biased toward disciplinary activity so that inferences drawn from the observations produce a distorted view of the culture's norms.

A beginning teacher's response to the perceived norms was considered to be influenced by three conditions: (a) the attitudes the teacher brings to the situation; (b) the teacher's prior socialization experience; and (c) the teacher's susceptibility to the socialization process. Hypotheses

were constructed to examine each of these elements of the theory, as well as the sampling bias premise.

The Research Procedure

A population of beginning secondary school teachers in and near Seattle was chosen for the study, and an attempt was made to contact every teacher in the population. The final sample included 38 per cent of the total population. Participants in the study also included 29 principals and 146 experienced teachers in the schools at which the beginning teachers were employed. The Minnesota Teacher Attitude Inventory, which had been selected as the measure of authoritarianism, was administered to all the beginning teachers in the fall of 1970, in the winter of 1970-71 and in the spring of 1971. The MTAI also was administered to all the experienced teachers and principals in the spring of 1971. Five other questionnaires were also completed by the participants during the course of the year.

The Research Results

Analysis of the data began in the summer of 1971. Each of the hypotheses was evaluated by testing a product-moment correlation, for which $r = 0.00$ was the null hypothesis, or by testing a difference of means with Student's t. In both cases 0.05 was set as the critical significance level. The analysis indicated that the null hypothesis was rejected for four hypotheses (numbers 1, 4, 5 and 6) and could not be rejected for the other 31 hypotheses.

The MTAI responses of all the experienced teachers and the spring-time MTAI responses of the beginning teachers were then subjected to a factor analysis and orthogonal rotation. Ten factors were identified, and the items were assigned to the factors according to two criteria: (a) the factor loading of an item on its factor had to be at least .30; and (b) the item was assigned to the factor for which its factor loading was maximal. Of the 150 items on the MTAI, 142 were assigned to the factors.

Four of the factors finally identified were quite similar to factors described earlier by Horn and Morrison and by Yee and Fruchter. Three of those four factors can be considered measures of authoritarian dimensions. They were each used as the measure of authoritarianism in each of the research hypotheses. Use of the factor scores in the tests of the hypotheses produced results that were different from those obtained by using total MTAI scores. Testing product-moment correlations and differences of means for significance yielded significant results on one or more factors for 16 of the 35 hypotheses. Of these 16, three of the hypotheses had significant statistics for all three factors. These were hypotheses four, five and six. Only one of the hypotheses had significant statistics for exactly two factors. This was hypothesis 33. Twelve hypotheses had only one factor out of the three with a significant statistic.

Correlations computed involving teachers' perceptions of principals' MTAI factor attitudes and beginning teachers' changes of attitudes on the factors were significant and large, in the .4 to .5 range. Correlations between the beginning teachers' beginning-of-the-year MTAI factor

scores and their changes of attitudes on those factors were statistically significant, also.

Conclusions

The purpose of this investigation was to obtain information that can assist administrators in selecting teachers for their schools. On the basis of the data of this study, it must be concluded that there is so little average change toward an authoritarian position by teachers during their first year of teaching that the average effect may be practically disregarded. The change between the beginning-of-the-year MTAI score mean and the end-of-the-year MTAI score mean was only 7.1, less than one-fourth of a standard deviation change. Furthermore, no significant change was discovered with any of the three authoritarian dimension factors. The point of these comments is not that attitude changes may not be important for administrators to consider when selecting teachers or operating schools, but that the average changes discovered in this research are not large. Teacher behavior may change a great deal in order to adjust to different environmental conditions, but the basic attitudes as measured by the MTAI of the teachers of the research population appear to remain relatively unchanged during the first year of teaching.

The constancy of teacher attitudes is demonstrated not only in the small difference of the means between the first and the last applications of the MTAI, but also in the high correlation of .75 between the scores on those applications. Such a high correlation indicates that the best predictor yet discovered of a teacher's attitudes next year is his set of attitudes today.

Besides the practical question of the amount of change that occurs is the theoretical problem of explaining the change. A theory to explain that change was proposed earlier in this report. Certain aspects of the theory appear to be supported by the evidence obtained in this study; other aspects of the theory were not supported.

The basic premise of the theory was that a socialization process is involved in the type of teachers' attitudinal changes that are measured by the MTAI. The significant correlations between changes of scores on MTAI permissive-authoritarian factors and teachers' perceptions of principals' attitudes supports the view that socialization is involved in the changes. The correlational evidence of the study cannot establish the cause-and-effect relationship that proves socialization to be the cause of the attitude changes, of course, but the evidence can make the socialization position credible.

Besides asserting that socialization is involved in the attitude change process, the theory proposed that beginning teachers are influenced by the teaching faculties as well as by the school principals. The data in this study provides little evidence that the attitudes of experienced teachers are related to the changes of attitudes of beginning teachers, or that beginning teachers' perceptions of faculty attitudes are related to their changes of attitudes. If beginning teachers primarily use their principals rather than their faculties to orient themselves to the cultural norms of the school system, the non-significant results obtained for many of the hypotheses can be easily understood. Since most of the hypotheses were directed at probing beginning teacher-

experienced faculty interactions, limited faculty influence on beginning teachers implies low correlations on those hypotheses. The size of the research sample was too small to permit the detection of low correlations, since with sixty degrees of freedom the smallest sample correlation that can be considered significant is .21.

Another basic premise of the theory is that beginning teachers' perceptions of the attitudes of experienced teachers and of their principals are based upon samples of observations that are subject to systematic bias. The great difference between beginning teachers' estimates of principals' and faculties' attitudes and the attitudes actually expressed by principals and experienced teachers generally supports that position. Furthermore, several hypotheses were designed to explore the mechanism of observation sample bias. These were hypotheses 15, 16, 19, 20, 21, 22, 23, 24, 25, 29 and 30. None of these had significant statistics when the total MTAI score was used, but four of the eleven had a significant statistic for at least one factor. Thus there were four significant statistics from 33 tests. The four significant results suggest that: (a) beginning teachers who have classroom responsibilities with another teacher have less change toward factor two type authoritarianism than do other teachers; (b) special curriculum project activity of beginning teachers is negatively related to change of factor type three attitudes; (c) the larger the number of department meetings held during the year, the less beginning teachers change toward factor one type authoritarianism; and (d) the greater the number of principal's observations of a beginning teacher, the more the beginning teacher changes toward factor one type authoritarianism. Although the theory

did not distinguish among different forms of authoritarianism and so can offer no explanation as to why significant results appear for one factor but not the others, the four results described above do tend to support the position of the theory.

The evidence of the data analysis suggests that the systematic bias of the sample of observations may completely dominate the situation. For example, the correlation between teachers' estimates of their principals' MTAI scores and the actual scores was only a non-significant .22. Furthermore,correlations between estimates and actual principals' factor scores were all non-significant, and none of the corresponding correlation coefficients for experienced teachers' scores were significant, either. Apparently the formation of beginning teachers' perceptions of principals' and experienced teachers' attitudes is dominated by systematic error factors. This domination suggests that institutional arrangements may determine the patterns of cultural norms that are perceived by beginning teachers and that the actual attitudes of the organization members may be largely irrelevant to the process. Some hints as to the nature of such institutional arrangements may be seen in the four hypotheses with significant statistics described above, but a complete description of such arrangements is not possible with the limited data available at this time.

The theory also proposes that the effect of the socialization process depends upon the attitudes the teachers bring to the schools, upon prior socialization experiences of the teachers, and upon the environmental influences acting concurrently with the socialization process.

Hypotheses seven and eight were designed to test the effect of prior attitudes upon attitude changes. Neither of the hypotheses yielded significant results with any measure. Hypotheses 9, 10, 11, 12 and 13 were designed to test the effect of prior socialization experiences upon the attitude changes. Significant results were obtained on only two of the hypotheses. The results suggest that: (a) beginning teachers from teachers colleges are more authoritarian at the beginning of the year than are beginning teachers from liberal arts colleges and universities; and (b) for factor one type authoritarianism the age of beginning teachers is negatively related to the size of the change of attitude during the year. Statement (a) suggests further that teachers college graduates have been pre-socialized into the education profession, although those graduates apparently change their attitudes just as much during their first year of teaching as do graduates of other institutions. Statement (b) suggests that the socialization experiences that come with age reduce the effect of the socialization process. However, in terms of predictive power these conditions are strictly secondary to the primary determinant of the beginning teachers' end-of-the-year MTAI scores, which is the beginning-of-the-year MTAI scores. Not only do the beginning-of-the-year total scores correlate .75 with the end-of-the-year scores, but the initial MTAI factor scores correlate as high as .56 with the changes of MTAI factor scores. The initial attitudes of beginning teachers seem to be the best predictor of their final attitudes.

Hypotheses 14, 17 and 18 were designed to investigate the effects of environmental distractions upon socialization. The argument proposed

was that weakened ties with the primary socializing unit should reduce socialization effects. Only hypothesis 17, that activity in college or in in-service training courses during the school year is negatively related to change of attitude scores, had a significant statistic, and then only for one factor. Obviously, very little can be said here.

Finally hypotheses 26, 27 and 28 tested the school psychological climate against changes of attitudes. Each of the three hypotheses had a significant statistic, but all three statistics are opposite in direction to that predicted by the theory. The autocratic style principals were associated with significantly less teacher attitude change than either participative style principals or laissez-faire style principals. The laissez-faire style principals were associated with less authoritarian directed change than participative style principals. These results directly oppose the sense of the theory that perceived principal attitudes should influence beginning teachers in the same direction as the attitudes perceived.

Considering the large number of non-significant results, no firm conclusion can be drawn from the study. As a correlational study it is necessarily exploratory rather than experimental. However, some support was provided for the particular socialization theory that was proposed earlier, and the significant statistics that were discovered point to areas that can be explored more thoroughly in future research.

The one recommendation that can be soundly based on this study is that for teacher populations similar to the population studied here in a metropolitan setting, practicing administrators need not be seriously concerned about the change of attitude toward authoritarianism that does occur during the first year of teaching.

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APPENDIX

APPENDIX A

TEACHER QUESTIONNAIRE 1

1. Your Name: _____

2. The Name of Your School: _____

3. Your Sex: Male
Female

4. Your Birthdate (month and year): _____

5. Your Marital Status: Married
Widowed
Divorced
Single

6. The Name of the College You Graduated from (your first bachelor's degree): _____

7. Your Total Undergraduate College Grade Point Average (to the nearest tenth of a unit or to the nearest percentage point, if possible): _____

8. Your Present Level of Teaching: Junior High School (grades 7, 8, 9)
Senior High School (grades 10, 11, 12 or grades 9, 10, 11, 12)

9. Have you previously held a full time position in any field other than the military for as long as 12 consecutive months: Yes
No

Have you served in the military as an enlisted man? Yes
No

If so, for how many months of active duty? _____

Have you served in the military as an officer? Yes
No

If so, for how many months of active duty? _____

10. During what fraction of the school day do you share responsibility with another teacher for a classroom teaching situation?

1/10	3/5
1/7	2/3
1/6	7/10
1/5	4/5
1/4	9/10
1/3	all day
1/2	None

TEACHER QUESTIONNAIRE 1

page 2

11. After each field listed at the right, please indicate the number of quarter-hours (credits) of course work you have taken in the field. (You can use the categories:

A. Less than 10 quarter-hours.
B. 10 to 19 quarter-hours.
C. 20 to 29 quarter hours.
D. 30 to 39 quarter-hours.
E. 40 to 49 quarter-hours.
F. 50 to 59 quarter-hours.
G. 60 or more quarter hours.)

Please return the completed questionnaire in the accompanying stamped, self-addressed envelope. And, thank you very much for helping us out.

APPENDIX B

PRINCIPAL QUESTIONNAIRE 1

With respect to _____, please provide us with the following information.

1. Is the teacher an athletic coach? Yes
   No
   If Yes, during how many seasons does he coach?_____

2. How many full-time certificated teachers are in his school?_____

3. Is the operation of the school based on any of the following? (Please check the appropriate items.)

   team teaching
   completely individualized instruction
   flexible scheduling

4. Please send us a copy of the teacher-course assignment roster. (Among other items of interest to us, we assume the roster provides a course-by-course teaching schedule of the teacher.)

5. Please send us a calendar of your school year. (We are particularly interested in the date for the end of the first semester, and the dates for the major holidays.)

Please return the material in the accompanying stamped, self-addressed envelope. And, thank you very much for helping us out.

APPENDIX C

TEACHER QUESTIONNAIRE 2

Your Name: _____

The Name of Your School: _____

Please indicate the number of hours you spent during the last seven days in professional contact with other teachers and the number of hours you spent in social contact with other teachers. (The bottom half of the page is scratch paper. After using it you can tear it off and destroy it if you want.)

Teacher Professional Contact _____hours

Teacher Social Contact _____hours

Also,

Please indicate the number of hours you spent during the last seven days in personal contact with non-teacher, non-family, friends.

Non-Teacher, Non-Family Social Contact _____hours

Please return the completed questionnaire in the stamped, self-addressed envelope. Thank you for your assistance.

Monday	_____	Monday	_____	Monday	_____
Tuesday	_____	Tuesday	_____	Tuesday	_____
Wednesday	_____	Wednesday	_____	Wednesday	_____
Thursday	_____	Thursday	_____	Thursday	_____
Friday	_____	Friday	_____	Friday	_____
Saturday	_____	Saturday	_____	Saturday	_____
Sunday	_____	Sunday	_____	Sunday	_____
Monday	_____	Monday	_____	Monday	_____
Tuesday	_____	Tuesday	_____	Tuesday	_____
Wednesday	_____	Wednesday	_____	Wednesday	_____
Thursday	_____	Thursday	_____	Thursday	_____
Friday	_____	Friday	_____	Friday	_____

APPENDIX D

TEACHER QUESTIONNAIRE 3

1. Have you worked on a curriculum committee or on a special curriculum project during the year? Yes
No

   If yes, about how many hours did you spend on that work during the year? _____

2. Have you taken any in-service training courses or college level courses during this last school year? Yes
No

   If so, how many such courses did you take? _____

3. How many professional associations, if any, do you belong to? (Count the National Education Association, the Washington Education Association and the local education association altogether as only one association. Do not count the P.T.A. as a professional association.)

4. Please list any organized community youth-centered activities that you led or helped to lead during the school year. (e.g., a Boy Scout troop, a church Sunday school. Please do not include activities sponsored by the school district.)

   _____

   _____

   _____

   _____

5. How many department meetings did you attend during the year? _____

6. Have the department meetings that you have attended seemed to be mostly to improve instruction, to handle administrative matters, or to be just about an even balance of the two?

   emphasis on instruction

   emphasis on administration

   even balance of instruction and administration

7. Have the faculty meetings that you have attended seemed to be mostly to improve instruction, to handle administrative matters, or to be just about an even balance of the two?

   emphasis on instruction

   emphasis on administration

   even balance of instruction and administration

TEACHER QUESTIONNAIRE 3

page 2

8. How many extra-class (or extra-curricular) activities taking place outside the regular school day did you chaperone during the year?

_____

9. How many times during the year did you observe another teacher teaching in a classroom situation? (Include only observations in which you watched the teacher for at least ten minutes.)_____

10. Which of the following statements best characterizes your view of your principal?

    a. He generally lets the faculty and individual teachers make their own decisions on practically every question.
    b. He generally talks questions over with the faculty, and teachers share in making decisions affecting them.
    c. He generally determines the answers to practically every question by himself and then informs the faculty or the teacher of his decisions.

_____

11. How many times during the year did your principal observe your teaching in a classroom situation? (Again, include only observations that lasted for at least ten minutes.) _____

12. How many times during the year did a supervisor other than your principal observe your teaching in a classroom situation? (Again, include only observations that lasted for at least ten minutes.)

_____

13. How many grades did you assign in each category at the end of the first semester?

"A"_____

"B"_____

"C"_____

"D"_____

Fail _____

Other _____

14. As far as you know, will you be teaching in the same school next year?

Yes
No

APPENDIX E

PRINCIPAL QUESTIONNAIRE 2

1. How many school assemblies did you have in your school during the year? _____

2. How many observations have you made in the classroom of _____ during the year? _____

3. How many students were in the school as of May 1? _____

4. How much money did your district spend per pupil this year? _____

Please return the questionnaire in the stamped, self-addressed envelope. Thank you for your assistance.